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JOHN N. DALTON, GOVERNOR

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COVER: Meadowlark by Roger Flythe, Aztec, New Mexico

Editorial

PROFICIENCY TESTS—WHERE ARE WE HEADED?

Is there a hunting proficiency test in your future? The trend would seem to indicate that there is. Several federal areas in Virginia require it now for their special hunts. Military areas are requiring hunter safety training and could as easily require a proficiency test. It has been suggested that it be required on all federal lands. Is it a good idea?

Anti-hunting groups think so and this alone should make hunters wary. Voluntary programs are springing up all over the country. The National Field Archery Association has one of the most aggressive programs going and is striving to get it recognized by state and federal hunting regulatory authorities.

Now, proficiency training is great and is badly needed. Credit should go to aggressive groups who are trying to clean up hunting and make it a higher caliber sport. But bureaucrats are quick to recognize a good thing and grab it. Thus, there is a constant danger of such programs becoming mandatory.

What would happen if they did? Obviously, the number of hunters would decrease. Eliminated would be those who could not pass, those too lazy to take the test, and many casual hunters who now decide on Friday night to go hunting with a friend on Saturday. Good riddance, you may say, but the cost of Virginia's wildlife program won't decrease. Thus the rest of us will have to assume the financial responsibility these people now carry. A little less crowding afield would be welcomed by all, but as hunting becomes more exclusive licenses will cost more. When coupled with higher energy (travel) costs there is some question whether many hunters faced with more red tape and expenses will stick with it or simply give up. It poses quite a dilemma for wildlife managers and for hunters as well. Big crowds pay the bills but destroy the quality of hunting. The more exclusive it becomes the less it is available to the common man. Most of hunting's problems stem from a lack of ethics rather than a lack of skill. This brings us back to personal and group morals, an area that courses and laws can do little to change—at least among adults. —HLG

Letters

WE DID IT AGAIN!

You indicated that there were several errors made in the June issue. What you should have said was... The May issue.

John E. L. Brierty
Callaway

July 1978 issue of *Virginia Wildlife*, page 3, "Antidote": The spelling of misspelled is incorrect but the chuckle it evoked has made my day!

A happy friend and one-time writer-editor

Congratulations to both readers for having a sharper eye than all of us!—Assistant Editor

MORE COVER IDEAS

Thank you for the beautiful Bluebird picture on the cover of May *Virginia Wildlife*. It is so perfect. I save all the bird pictures. By using technique called Modge Podge, they can be made to look like oil paintings.

Dorothy Warren
Lyndhurst

Thanks for the new idea. I hope other readers will follow your lead.—Assistant Editor.

STRANGE BEDFELLOWS

You can use this as an informative article from one friendly state to another. You referred to the West coast of Florida in an article which appeared in February issue on *Gray Squirrel* endangered species model written by John Pettis and Cleve Cowles. Your authors were correct in saying gray squirrels dislike being cooped up. In fact they insist on having one enormous live oak tree per family.

We in Gulf Gate residential area in Sarasota, Florida do everything but sleep with that little feller you photographed so well. We have their nests in every one of our gigantic live oak trees as do all of our neighbors and we are sure you will be happy to know that they are multiplying so rapidly that in another few years we will be more than happy to ship any number of them to you, say a hundred or more, to Cornell researchers or Virginia Polytechnic Institute or wherever they like.

We may be arrested for outwitting our adorable nuisances but we put a tall feeder on a slender metal pole and grease it daily. They get "A" for trying as they leap up the pole and slide down then mosey over to a sandpile and tummy-rub the oil off and go back and try again.

Olive K. Tuttle
Sarasota, Florida

RESPECT FOR ROUGHFISH

I am doing something that I do not do very often, namely writing a "Letter to the Editor." I do so because I wanted to compliment you on including the one-page article by Richard Hardy entitled, "Roughfish." This appeared on page 31 of your excellent magazine, Volume 39, Number 6, June, 1978.

Mr. Hardy has addressed in a positive and constructive way an extremely important subject, especially as one looks down the road past the end of the century. There is no doubt in my mind that, as the army of fisherman multiplies over the next few decades and as water quality may gradually deteriorate to some extent, a number of species of fish now collectively referred to as "roughfish" will become increasingly important objects of recreational fishing.

Richard H. Stroud
Executive Vice President
Sport Fishing Institute

THANKS

I have enjoyed *Virginia Wildlife* for many years. It is a fine magazine.

Hugh Holder
Richmond

DECOYS DO THE JOB

BY DAN M. RUSSELL

Dove hunting is at its best when things like the temperature, rainfall, harvest season, cropping pattern, feeding areas, water supplies and half-days off from work all meet on the plus side. When you have sparkling, sunny days for the farmers to cut silage, to combine fields of milo-sorghum and to mow down the millet and soybean hay where doves can gather for feeding. When you have low water ponds with dried up mud margins that make ideal dove watering places. . . When all these favorable conditions occur at the same time everyone takes to the fields. The farmers, the doves and the hunters all get it together for a grand session of one of the greatest outdoor sports at one of the greatest times of the year.

But what happens when all these factors don't jive? If you still want to get out there, you fall back on your little bag of decoys. That's right, Dove Decoys!

It's natural to be skeptical, I was too. I wouldn't have pulled out decoys in front of a gang of hunters until I'd tried them.

After the first time, I have always put the decoys in the car on opening day so, if needed, they were handy. I find they are especially welcome when there are too few hunters present to keep the doves moving and also to pull doves in for pass shooting. Like an extra box of shells, it's good to have them along.

Perhaps it should be noted that I'm not a decoy maker (except for some I might use myself) nor do I represent one. Nor do I think you necessarily need to use commercially made decoys, although there are good ones available at your favorite sports store. You can get the same effect by cutting and pasting, tacking and spraying or stapling and painting your own silhouettes or twisting paper cones or shaping cardboard shirt forms or shoe boxes. Attach them to grip type clothespins or homemade wire hangers that can be fastened to a limb or fence wire or sit upright in a bare field. Make them anyway you choose and use any material you fancy. Use your imagination. It's a lot like making your own fishing lures — there's a certain

WHEN DOVES AREN'T GOING YOUR WAY, GO FOR THE DECOYS.

satisfaction in outwitting your quarry with your own schemes or homemade devices.

A dozen decoys is probably enough. I used six on one occasion and pulled in half my limit while my partner was switching around trying to find just that exactly right spot to do his shooting from. Here's a few samples of how decoys worked for me under different conditions.

One hot, blue hazy day, with what the weather people refer to as ozone or an inversion layer, two of us were waiting for doves to come in to a feeding field. It was ninety degrees plus and no doves moving made it seem even hotter. I shuffled here and there and was staring over the top of a tobacco patch when a dove flew up, then another and the noise spooked another. Those doves were down between the rows of tobacco feeding on "dove weed," one of the spurge family of plants. The three-cornered seed is a favorite, hence the name dove weed. There they were, but we couldn't hunt in a tobacco patch and risk damage to the crop of leaves. Besides, the chances of finding a downed bird were small indeed in all that cover. We figured our best bet would be to watch them leave the field as they finished feeding. Doves usually feed, then take off for water then hurry back to loafing. So we watched and soon spotted their exit corridor. Out about 150 yards from where they left the field there was an old dead elm snag with a barbed wire tacked to it and we set up the decoys there, some on the dead twigs and some on the fence. Doves are gregarious, they like to hang out together and they like to gang up before, during and after meals. So it worked. On leaving the tobacco patch, from at least 50 yards away the doves would spot the decoys and wing over toward them. I won't say they came right in to us, they did usually swing by close enough for a shot and it's hard to beat good pass shooting. We had a good day despite the heat and the lethergic doves.

Another time I recall was opening day and a combined milo field was red hot. Doves and hunters both hyperactive. On this trip I had a young fellow with me for one of his first dove shoots. With all the shooting going on, it was easy to see the shooting stands were all filled. We set our stool of decoys in the field and took a stand back in the fencerow. I'm sure the youngster was wondering what kind of nonsense I was pulling, backing him into a fencerow so far away from the shooting. I was also having some qualms about how to explain this if it didn't pan out. But it did pan out. It wasn't long until some of the surplus doves began to pass over near the decoys and some even settled in the field. There was enough shooting to keep us busy, actually we got our limit — of shooting at least — and had time to watch some of the shooters in the hot area finish up their limit.

One evening about watering time I set up decoys next to a pond hogs had been using. There was no fence standing, only a disconnected electric fence wire. I just raised a stretch of wire between two poles and clothespineed my decoys to the wire and it worked fine. As usual, the doves spotted the decoys a good ways off and altered their course to swing over for a look-see.

Another ideal time to use decoys is late in the season, especially after frost time, when the doves like to loose themselves in the big river bottom fields. They will get up while you are still well out of range and fly to the far end of the field every time. And if you shoot or pursue, they may leave the area entirely. Decoys provide about all the chance there is. If you'll study the line of flight into and out of the field and set up your decoys accoringly, you'll more than likely have some fair to good pass shooting, where you might otherwise get nothing.

Generally speaking, the terrain dictates where and how to set up your decoys. Make them visible. If it is hilly, put them up in a dead tree or on a wire. In open, flat land like a pasture or cultivated ground or short stubble, they can be hung on a fence wire or spread on the ground. It's worth the effort, even fun, and it does help bring in the doves.

SMALL STREAM FISHING

I hadn't intended to do anything outdoors that August afternoon. Temperatures sweltered in the mid-90's. Pollution was thick in the air. But when Ranny Isenberg rang me on the phone from Manassas, it didn't take him long to convince me we'd be better off fishing than hanging around the house.

As I started fighting the traffic and breathing the highway fumes on the drive to his house, though, I began having second thoughts about my rash decision. Wouldn't it be nicer to be sipping an ice-filled drink in an air-conditioned room than this? The doubts grew until we finally pitched into Ranny's truck and got out of the congestion into the more remote parts of Prince William County. The day didn't seem quite so bad as we sped past the woods and cornfields.

When we turned off the road alongside Cedar Run, stuffed our pockets full of lures, hooks, and bobbers, and sloshed into the soothing silver waters, the day took on a totally new complexion. Perspiration-laden brows felt cool under the soft caress of the stream breeze.

Elms, oaks, sycamores, and hickories formed a protective canopy over the small stream, shielding it from the harsh sun and keeping water temperatures low enough that gamefish were on the feed, in spite of the midday hour and soaring mercury.

We saw bass breaking water even before we had a chance to knot hooks onto our light monofilament lines. Beating me to the punch, Ranny dropped his lip-hooked minnow above where a fish had ruffled the water and was instantly fast to a scrappy Cedar Run bigmouth. The bass fought briskly, catapulting from the water several times before reluctantly coming to grasp.

We admired the sharp lines and crisp, brilliant colors on the plump 10-inch specimen before returning him to the water and watched as he sped back to his dark green home pool.

"It doesn't seem so hot and polluted down here, does it?" Ranny asked with a smile.

"Sure doesn't," I answered. "It's hard to believe we're only half an hour from the steaming streets of Washington. I feel like I'm on a wilderness stream 50 miles from the nearest town."

Small streams can do that to you. They are a vastly under-fished type of water in the Old Dominion, as in most other states. Because of this neglect, they offer benefits that are not always readily available on some of the more popular impoundments and large rivers. Chief among these is solitude. It's far from typical to see other anglers fishing the small streams that traverse Virginia, unless they happen to be trout streams in the western part of the state.

The reasons for the neglect of such waters are interesting to speculate on. Of course, there are some anglers who simply don't realize they have good stream fishing probably within a half hour of their home. Then there are others who aren't impressed with small streams because they do not offer large fish in abundance. The big-fish, big-water syndrome has bitten many fishermen of late. Small streams are definitely not the place to look for lunkers.

The rewards of creek fishing come in other colors and on a different scale. Remoteness and relief from the crowds is one of the central drawing powers of the little streams. A major outgrowth of this is increased opportunities for wildlife viewing. Both game and non-game animals and birds are often more abundant and visible along stream edges than on larger, more popular bodies of water.

Neglect often also means greater numbers of fish for the enterprising angler to pit his skills against, and

BY GERALD ALMY

A SOMETIMES FORGOTTEN, BUT ALWAYS ENJOYABLE, PLACE TO GO FISHING.

fish which are more eager to strike than the educated specimens inhabiting our heavily-pounded waters.

Fishing small streams requires no great angling skills or expensive equipment. Wading is the preferable, and often the only way these waters can be fished. Most are too small for boats. You'd spook every fish before you could get to it with a canoe or jon boat on these small creeks. And fishing from the bank is seldom a viable alternative, since trees and brush usually grow thick along the water's edge.

Wading allows the angler to sneak up on the fish and present his lure right next to an undercut bank, a submerged rock, or anchored log jam that might hold a scrapper or two eager to do battle.

Stealth is the most important tactic to keep in mind when fishing small warm-water creeks. The quarry may be lightly fished, but they are neither naive nor careless.

Gear for small stream fishing should be in the light to ultralight category. Spinning rods measuring 4½-5½ feet and a reel spooled with 2-6 pound test monofilament line make a combination that's a pleasure to use and very effective on the shy stream bass. Fly rods in the 6-7½ foot length carrying a floating line from weights 4-6 will handle the small poppers, deer hair bugs, rubber spiders, and wet flies that work so well on small stream bass and panfish.

Live minnows and worms are, of course, very effective on small creek inhabitants, but I find I rarely use them because of the needless extra fuss involved. Most small streams are so chock full of willing fish that you end up wasting half your time catching bait and rebaiting hooks. And in the majority of the small streams I've fished, the bass and bream are so eager to hit artificials that there's no real need to resort to live bait.

If I had to choose one lure for all small stream fishing, there would be no doubt in my mind as to what that lure would be — the spinnerbait. In the 1/16 and 1/32 ounce sizes with soft plastic bodies, these lures are as deadly as dynamite on small stream fish. And there's no special trick to working them either. Simply a slow steady retrieve does the job.

All stream fish seem to relish this odd-looking tidbit. An average day on a small stream will yield 50 or 60 sunfish, bluegills, or rockbass, along with quite a few smallmouths or largemouths on the potent spinnerbaits.

My small stream spinning gear usually includes half a dozen of these lures in assorted colors. Added to this are a brace of thin floating-diving minnow plugs, which frequently draw the attention of the larger bass present, and perhaps a banana-shaped wobbler or two and a traditional French spinner. With this selection you should have no trouble drawing ample strikes on a typical warmwater Virginia stream.

One of the most attractive things about small stream fishing is that they are frequently productive right through the hot sultry days of July and August. Fishing out on a lake in a boat in 90 degree temperatures often sours into a chore more than anything else. But wading a cool little shaded creek is a different story. Since the water is shaded and flowing cold from its source, the small stream will generally remain at a lower temperature than nearby lakes. This usually means the fish will feed more actively than their still-water counterparts during the "dog days" of summer.

Where to find good small streams is a question each angler will have to answer himself, depending upon where you live in the state. There's no need to drive far to locate such fishing. A half hour is the most anyone should have to travel to home in on a good warmwater creek. Topo maps provide the surest and fastest way to locate numerous streams which can then be investigated for their fishing potential. But simply driving down back roads in your area may also turn up good bass and bream creeks. Alexandria Drafting Company's "Freshwater Fishing and Hunting in Virginia" publication, available at most sporting goods stores, shows numerous small creeks in every locale and the routes that cross them as well as listing the fish present.

ON SILENT WINGS THEY COME, FILLING SOUTHERN SKIES. HAWKS

Beginning in August and continuing into late autumn, millions of birds migrate southward from Canada and our northern states. One group of migrants, the raptors of birds of prey, has attracted an ever-increasing group of "watchers". Thousands of hawk-watchers from throughout the United States and Canada make an annual pilgrimage to the world-famous Hawk Mountain, located on Kittatinny Ridge--and part of the Appalachians--in Pennsylvania, to observe the migrating hawks at spectacularly close range.

Hawk-watching in the Appalachians, south of Pennsylvania, is supposed to be somewhat of a pot-luck affair. In the autumn of 1973, however, a friend who was a licensed bander for the U.S. Fish and Wildlife Service, and I set up a banding station on Catoctin Mountain, north of Leesburg, Virginia. The station was operated from September 15 to December 15. For 14 days during that period, I recorded daily hawk sightings--on an hourly basis--by species and number. Pertinent weather data also were recorded. We sighted 1,040 hawks and identified 14 species.

Although Catoctin Mountain is merely a branch of the Appalachians and the concentration of hawks using it is not as great as the number using the principal ridges, my census total and other recorded data are sufficient for certain interpretations. The census illustrates the numbers of each hawk species migrating through the Virginia mountains, approximately when in autumn each species might be sighted, and indicates rations among the migrating hawks. The weather data that I recorded allow some correlation of hawk flights and weather.

Hawks are classified in three major types. The accipiters are the true hawks. They have long tails and short well-rounded wings. They fly with short, rapid wing beats, followed by a glide. The three North American accipitrine hawks are the Goshawks, Cooper's Hawk, and the Sharp-shinned Hawk.

The buteos are the large soaring hawks. They have robust bodies, long, broad and rounded wings and short tails. The buteos that occur regularly in eastern North America are the red-tailed, red-shouldered, broad-winged, and the rough-legged hawks.

The falcons have long pointed wings and relatively long tails. Beautifully streamlined, they fly in a direct path with deep, rapid wing beats. The peregrine is the largest falcon in eastern United States. The smaller merlins and kestrels also may be observed here.

The autumnal migration of birds in eastern United States is southward along the Atlantic Flyway, the area of the Appalachians to the Atlantic Ocean. A hawk's choice of its migration route--along the coast or along the mountains--is largely dependent upon the bird's structure and its habits. The falcons, the kestrels, the merlins, and the rare peregrine prefer the coastal route. Other birds of prey, particularly the large soaring buteos, follow the Appalachian Mountains in their migration to take advantage of the ridges' production of air currents that will ease their flight.

My census shows that September was dominated by the migration of broadwings. The 469 broad-wings that were sighted represented about 45 percent of the season's total count.

The broad-wing's use of thermals is a principal factor in explaining its early autumn appearance; there, also, is probably a correlation between its early migration and the great distance it travels to its winter quarters, from Canada and northern United States to South America. In September, the sun's rays are still strong, and the hawk's use of thermals was evident. The broad-wings were generally observed in "kettles", a large flock of hawks milling about in the sky. The milling was actually their spiral climb to the top of the air column. The largest kettle, numbering 120 birds, was sighted shortly after 5 P.M. on September 19.

In late September, the sharp-shins begin appearing in large numbers, and their migration was constant through October. We sighted 186, about 18 percent of the census total.

Unlike the broad-wings, winds appeared to be a factor in influencing the sharp-shin flight. The sharp-shin because of its structure does not benefit from thermals to the extent that broad-wings do. Head winds provided the amount of updraft necessary to lift these small hawks and carry them over the ridge. On

OVER VIRGINIA

BY MARGY HALPIN

days with winds exceeding 10 m.p.h., the sharp-shins folded their wing inward to decrease the amount of surface exposed to wind resistance. This produced the "teardrop" effect, and made it possible for the bird to control its flight.

The red-tailed hawks were sighted toward the end of September. Their migration remained fairly constant throughout the season, but greater numbers passed over the station during the latter part of October and the first half of November. A total of 208 red-tails were sighted.

In contrast to the sharp-shins, the red-tails appeared to prefer northerly winds. Days with northwest winds produced excellent flights. Whereas the head winds benefitted the sharp-shins, the tail winds helped the red-tail. This buteo is a larger bird and can utilize the extra pushing force provided by tail winds in sustaining an effortless flight.

Only one red-shouldered hawk was sighted during the entire time that the station was manned. It is possible that these hawks do not leave the main Appalachian ridges until they are farther south.

One rough-legged hawk was sighted in November. This buteo makes the southward trip from its home in the far north only when the food supply decreases. Similarly, the goshawk, migrates only when the food cycle is at a low. We saw one goshawk pass over the station on November 8.

Twenty-eight Cooper's hawks were seen or about 3 percent of the season's total raptor count. This bird has become an uncommon hawk, but although its numbers were small, they were steady during the season.

The kestrel is one of the most common raptors in the eastern United States, but only 11 were seen at the ridge. It is possible that the peak of their migration had occurred before the opening of our station, but it is more likely that the majority of these small falcons migrate along the coast.

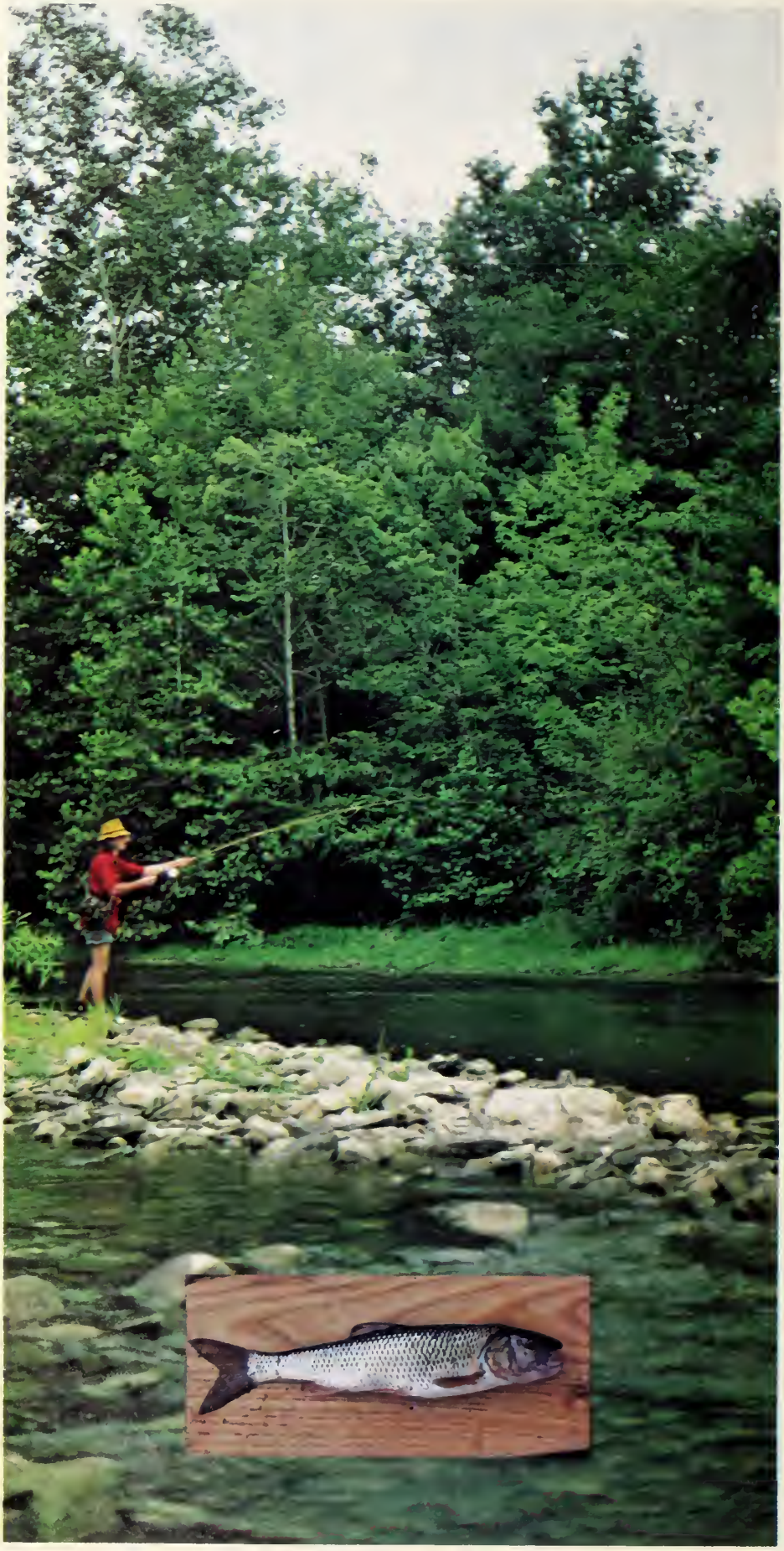
The merlin is essentially a Canadian falcon and is comparatively uncommon. Only one of these jay-sized birds was spotted. It was seen at the end of September. Like the kestrels, most merlins migrate along the coast.

Two peregrines were sighted in early October. As these birds are an endangered species, their passage was the highlight of October.

Two harriers, also known as marsh haws, were sighted on one day in mid-November. As many were seen residing locally, it is possible that they use migration routes other than the Appalachian ridges.

The ospreys migrated at the same time as the broad-wings, in September, with the greatest number passing toward the end of the month. Nineteen of these fish-hawks were sighted, about 1.8 percent of the season's total raptor count.

Mid-December marked the end of the migration season at our station. In retrospect, it is evident that the seasonal movement of the birds of prey depends not on a single factor but rather on the interaction of many variables. Further, the complex of these variables differs for the individual hawk species. And a different aspect--we had seen 1,040 raptors in 14 days. What would have been the total if a full-time watch had been kept for the entire period as is done at Hawk Mountain? Is it possible that there are sites for hawk-watching in the Appalachians of Virginia that might rival Hawk Mountain?



DON'T UNDERESTIMATE THE FALLFISH, VIRGINIA'S LARGEST NATIVE MINNOW.

BY PAUL H. BRATTON, JR.

The thunderstorm passed on across the mountains as evening approached. With the forest still dripping and the run-off swelling the river and streams, I anticipated a bass feeding spree and set out with my spinning rod and canvas tackle bag to fish the rising waters.

I started by working a spinner and wet fly combination through a small pool at the spot where the smooth water merged into the fast riffles downstream. The river was already clouded by the heavy rains, but that didn't hamper my fishing. Catching several rock bass on my first few retrieves, I realized I had found a school of the gregarious fish. The rock bass thrive in the small, clear rivers that funnel the waters of Virginia's mountains into the James. Though seldom as large as a pound, the scrappy bass put up a good fight on a light rod.

After leaving the rock bass, I waded on down the Calfpasture River working the small spinner across the milky currents. At the river bend I flipped my lure under the alders that line the bank and connected with a 15-inch smallmouth bass in water barely deep enough to cover its dorsal fin. Like the river, I was in a benevolent mood and released the smallmouth as I had the rock bass. Besides it was fast becoming too dark for cleaning my catch before I walked back to the cabin.

The river rose steadily and the gentle glow of the sunset was fading as I made my last casts. I had already hooked and released several fallfish, a silvery forked-tail minnow that is common in the faster sections of these Appalachian rivers. I could

usually tell immediately when I had one on, for some reason they all ran upstream when hooked.

Then I felt a heavier strike. The fish ran upstream, but this one ran faster and harder, and I was forced to crank furiously to keep the line taut. Instead of passing me to go on up river, I realized this fish had decided to seek shelter between my legs, the only nearby obstruction in the river.

I suddenly found myself performing a weird dance in the waist-deep water, as if involved in some strange pagan rite dedicated to the river gods and the rising of the moon, with one arm holding the doubled rod as high and far away from me as I could reach, while I tried to keep both legs untangled from the fish and the line. A vision of the treble hook raking through my bare calf and the prospect of untangling myself from the fish, hook, and monofilament in the middle of the dark, rising river went through my mind as I considered an epitaph reading "Fisherman Drowned by Minnow."

Luckily, I found I had taken in just enough line to keep the fish away from my legs. The rod's action soon wore the fallfish down to the point where I was able to grasp it and put it, tail first, into the canvas creel. After working the hook lose from its mouth, which still extended a good six inches out of the bag, I released the giant minnow and waded out to the rock bank. I walked home in the darkness, exhilarated by the evening's fishing and my encounter with the fallfish.

A fallfish, even when it is 18 inches long, is still a minnow, for a minnow is not just any small fish but a definite member of a large family of fishes called the Cyprinidae. Most of the more than 200 North American species of the Cyprinidae family fit the common conception of a minnow. Like the blacknose dace and bluntnose minnow, they are usually small, numerous, and chiefly attract interest as baitfish or forage for the larger game fish.

With a maximum size over 18 inches, the fallfish is the largest minnow native to the eastern United States, only the western squawfish and imported carp exceed it in size among American minnows. Named for its inclination to reside at the base of waterfalls and in other swift water, the fallfish is found in streams, rivers, and lakes from the James River drainage in Virginia north to the James Bay region of Canada.

During the spring spawning season, schools of fallfish gather in the swift riffles of rivers and streams. The male fish is the nest builder, carrying one and two inch stones in its mouth and heaping them into mounds for the fertilized eggs protection. The mounds can be six feet across and three feet high but are usually smaller. The male guards the nest until the eggs hatch, then abandons the fry to fend for themselves.

The closely related creek chub or horned dace doesn't grow as large as the fallfish and is found in smaller streams, including the headwater areas where native brook trout dominate the angler's attentions. In the spring the spawning male is a spectacular fish with purple coloration on its flanks and the hard breeding tubercles that form on its snout. The "horns" of the male are used in nestbuilding and fighting other males. Like the fallfish, the creek chub is usually caught by the angler when fishing for more conventional game fish.

When they are mentioned at all, the fallfish and its kin are given a fixed appraisal in the angling literature. One author says fallfish put up a good fight but are rather tasteless, while another reports that they give in quickly but make a respectable meal. Such disagreements have endured for centuries with Izaak Walton supporting the English chub's food status, if the fish is cleaned and prepared properly, and Henry David Thoreau commenting that the fallfish "tastes like a brown paper salted."

A Euell Gibbons recipe for preparing carp can easily be adapted to its relative, the fallfish. Taking a large fallfish, it should first be cleaned and skinned. Using only your fingers, good sized chunks of meat can then be pulled from between the larger bones. The pieces of fish are rubbed with salt and deep-fryed in vegetable shortening. The smaller bones that remain are little trouble and can easily be picked out as the fish is eaten.

The fallfish, known to science as Semotilus coporalis, may be called a chub and is often considered a nuisance by fishermen in search of the classier bass and trout which usually inhabit the same waters. But since it feeds largely on insects and smaller fish, the fallfish is commonly caught on smallmouth bass and trout lures. My experience has been that any lure suitable for the bass and trout will also catch fallfish.

A book, published in the 1940's, reported that some states were then engaged in artificial propogation of fallfish to furnish flyfishing in places where trout don't do well. The fallfish does take artificial flies readily and its subsurface fighting techniques will sometimes convince even experienced trout fishermen that they have tied into a brown trout. But despite the similarities in basic body shape, feeding habits, and habitats, the fallfish is still a long way from replacing trout in the flyfisherman's estimation.

Nevertheless, the fallfish probably enjoys its less exalted reputation. It is more often left alone to go about its business and less likely to end up on the angler's dinner plate than it's highly praised and carefully stalked neighbors, the bass and trout. A tarnished reputation with anglers may well be a trait of great value in the evolutionary struggle for survival.

TALE OF A MINNOW

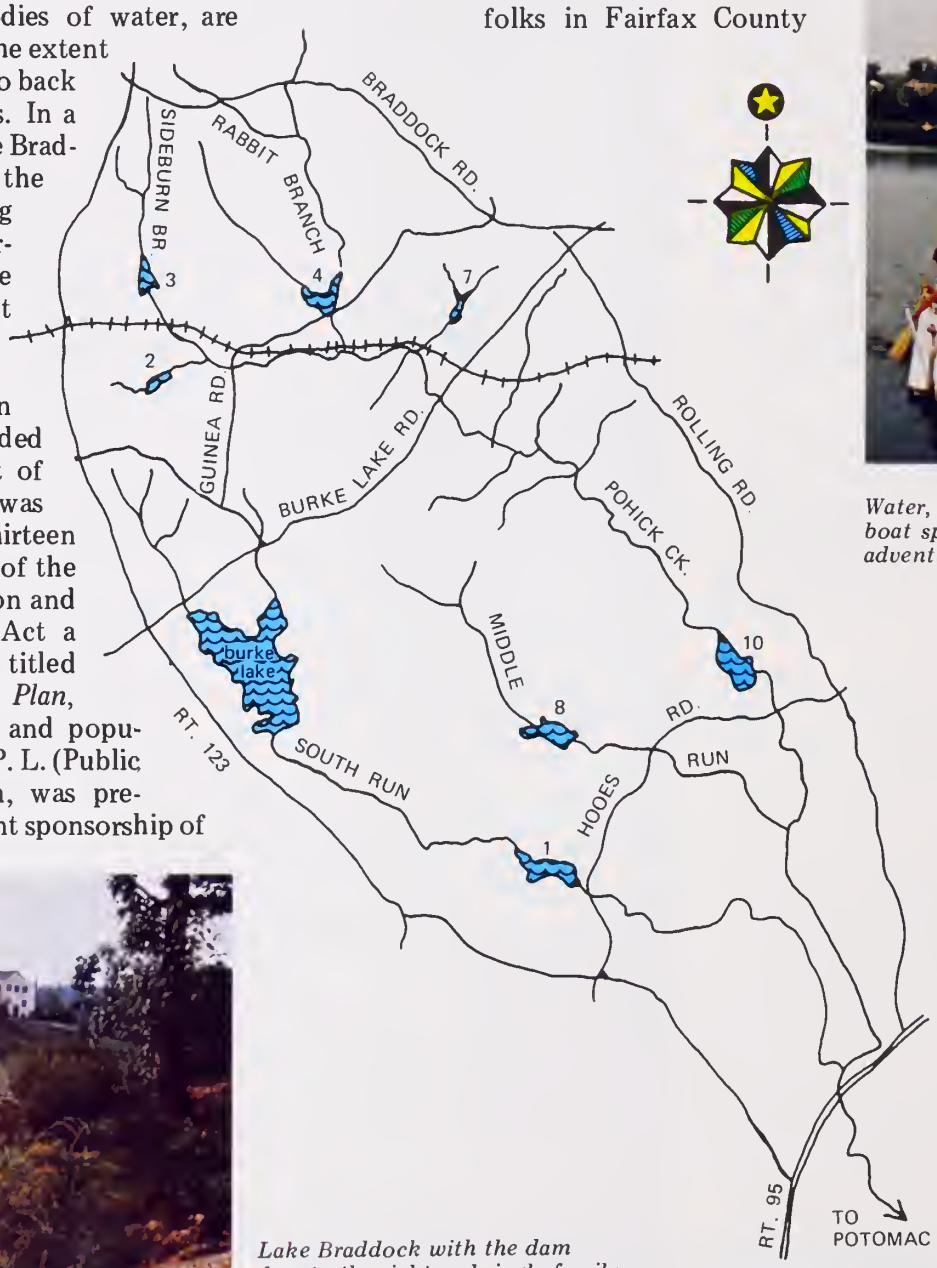
Fairfax's Great Lakes

BY RONALD FRASER

When Mr. Carter ordered most federal water projects, including those in the Soil Conservation Service's small watershed program, officially re-evaluated, local SCS officials were not surprised the County's Pohick Creek Watershed program passed the Washington review with flying colors. Their earlier confidence that the benefits of this particular program are substantially greater than the costs was reaffirmed.

In spite of its rolling terrain, impoundment of water in Fairfax County is not commonly left to an act of God. Burke Lake and Lake Barcroft, two of the County's larger bodies of water, are both man made to the extent dams were needed to back up existing streams. In a similar fashion Lake Braddock, number 7 on the accompanying Pohick Creek Watershed map, and the completed but yet unnamed lakes, numbered 4 and 8, were given life--except--one added force, of 1954 act of the U.S. Congress, was also necessary. Thirteen years after passage of the Watershed Protection and Flood Prevention Act a local document titled *Watershed Work Plan, Pohick Watershed*, and popularly known as the P. L. (Public Law) 566 Program, was prepared undee the joint sponsorship of the Northern Virginia Soil and Water Conservation District and the Fairfax County Board of Supervisors. According to SCS officials the plan's basic concept is, in fact, quite innovative since for the first time nationally a small waterhed management program is being implemented in a predominately rural but rapidly urbanizing area.

While the Corps of Engineers is still a favorite target of anti-dam environmentalists local folks in Fairfax County



Water, sunshine, wind and a boat spells an afternoon of adventure for the young.

Lake Braddock with the dam face to the right and single family homes to the left.

look, by in large, much more favorably on the three Pohick dams currently in place and the two ready for construction. When it comes to dams, small may well be beautiful.

The map presents a long range plan for the entire 22,700 acre Pohick Creek watershed were original population projections called for an increase from 4,767 persons in 1965, to 75,000 in 1980, and as many as 162,000 by the year 2000. During this period of rural to suburban transformation, 85% of the watershed's woodlands, totaling 15,885 acres in 1967, may be converted from natural to urban and residential uses. Unless control measures are taken, maintains the plan, rainwater run-off will cause serious flooding and erosion problems in the years to come. Originally, ten dams were proposed for the primary purpose of flood and downstream erosion control but with optional uses including recreation.

Dam site 4, surrounded by suburban subdivisions, the largest being Kings Park West, is now completed and will be the third and largest lake yet when filled late this year. Dams 5, 6, and 9 have been deleted from the original plan — leaving numbers 1, 2, 3, and 10 still planned — with number 2 nearest construction, probably in 1978, followed closely by number 3. Both are located in or near the controversial Burke Center development.

A number of factors contribute to the plan's local popularity. First, it is quickly apparent that these are modest structures indeed when compared to the better known monuments for which the Bureau of Reclaimation and Corps of Engineers are now both famous and infamous. Major condemnation proceedings and disruption of settlement patterns are, by in large, avoided.

Secondly, much of the costs associated with the program are paid from federal funds administered by the SCS. While these federal monies will cover only the cost of a basic dam and shallow lake, sufficient for flood and sediment control, additional funds may be provided by local government or private sources to increase the dam's height. For example. Lake Braddock's ,total $182,000 construction cost was shared equally by the adjoining communities' developer and SCS.

Finally, all three completed lake sites, with their larger than minimum SCS prescribed dam size, offer welcomed boating, fishing, walking and picnicing areas in a unique recreational setting not found in other more routinely suburban parts of the county.

Once constructed, maintenance responsibility for all dams and their related parts, such as the spillway and drainage pipes passing through the dam, rests with the Fairfax County Department of Public Works. Other tasks, including silt removal, shoreline clean-up and fish stocking are assigned to the Fairfax County Park Authority — except for Lake Braddock. In this lone case the local homeowners' association has assumed responsibility for these duties.

Each lake is designed to hold, without bursting or flooding nearby homes, a flood of such severity its chances of occurring is only once every 100 years. But, of greater concern to the long term good health of these lakes is sedimentation — a natural and unavoidable process — which occurs when moving water, upon entering a calm lake, drops suspended material including soil, sand, and small pebbles. Since a 100 year sediment storage capacity has been built into the lakes' design sediment accumulation will be measured not in inches, but in feet, and can eventually cover a good part of a lake's bottom. These trapped sediments, in the absence of the Pohick Watershed Plan would have finally come to rest in the Potomac River, reducing both its usefulness for navigation and ability to carry off storm water. In this way a "small" Northern Virginia watershed program, in fact, provides a very large, regionwide, service.

With the exceptionally fast pace of new home development along the Braddock Road and Burke Lake Road corridors, and the frequently heard complaint that needed new public facilities, such as roads, lag far behind private building programs, the Pohick Watershed Plan may well reflect a rare example of public farsightedness. Lake Braddock was completed concurrent with construction of the 1,200 home community along its shore; and Burke Center's dam site 2 will also experience a timely completion date. Finally, dam 8 was built, and its reservoir filled, long before the seemingly inevitable, but now underway and fullscale, shoreline change from mature woodlands to brand spanking new townhouses began.

Unfortunately, a somewhat self-defeating relationship has been set in motion. It works like this. Flood and sedimentation control is needed to contain the side effects of rapid suburbanization. The lakes, however, enhance their surrounding properties and are themselves an added motivation for more development. Up goes the need for greater control, calling forth yet another lake, ... and so on and so forth.

Setting aside this troublesome point of logic and returning to the more practical world of government administration, Mr. Carter's objectives are dual — make sure federal water programs serve national goals (flood and sedimentation control) but in an efficient (cost versus benefit) manner. Fairfax County residents add to these requirements a desire for pleasing and well operated recreational facilities at a reasonable cost to local taxpapers.

All in all, it would be hard to find a federal-local cooperative program of comparable size with as much subtle support at the grass roots level. Perhaps that's why we hear so little about programs of this type, in stark contrast to the I-66 variety which seem to quickly polarize both advocates and opponents into warring camps.

Gold Along The Meherrin

BY SHELTON H. SHORT, III

From the largest log in the river to the tiniest tadpole, there is a mutual inter-dependency for continued survival. It is a carefully planned cycle of life.

Green plants utilizing the golden sun provide nutrition for grass-eating animals such as deer and rabbits. The latter in turn provide food for meat-eaters like the fox, bobcat and weasel. When the predators themselves die, their remains eventually return to the soil to provide fertilizers for trees and grasses thus completing life's cycle by Mother Nature.

The balance of nature is a superb thing. If one species became all dominant to the extent of eliminating another, the survivors themselves may eventually die because of the decreased food supply.

The upper Meherrin is a beautiful stream relatively untouched by human progress. The checks and balances of nature are indeed in true beauty here. Gold can be found in the Lunenburg Forks and along the Mecklenburg border, but there is also quicksand, sunfish and sandbars in Brunswick, and also the cottonmouth moccasin! Places where children learn to "dog-paddle" and wade, if not the Australian Crawl, but a river where adults as well as children have drowned, the Meherrin River can provide beauty and happiness, but also trauma and tragedy.

The principal figure in any form of life on earth is the sun, but water is vital. Trees such as the Sycamore, Birch, Oak and Pine make the roof of the forest. Then shrubs like the wild azaleas, mountain laurel, blackberries and smaller trees such as holly and dogwood form a second story. The grasses, weeds and flowers like the golden rod and daisy become the ground floor, and the roots of all three levels - the basement!

Trees each autumn supply tons of leaves to the forest floor, mostly various shades of gold, yellow, brown and red. They in turn decay into needed nutrition which enables plants to regenerate. Many of the leaves fall into the river causing small algae to be born. Fish such as bream and the gold bellied perch feed and grow from these algae and then ones like bass feed upon the bream and sun-perch.

As for shrubs, they are used by birds like the brown thrush and cardinal for nesting and by small animals for cover and protection. They also provide food such as blackberries as do larger trees like the hickory and acorns from oaks.

Squirrels in turn plant the nuts of trees which in time grow to form more food and often wood hollows for homes for future generations of forest dwellers such as the owl, opossum, racoon and honeybee. Caterpillars and grasshoppers eat leaves and grasses, but they provide feed for song birds.

Life's cycle of nature and these few paragraphs may seem elementary. So much we take for granted. The Meherrin, however, has its guardians like the redheaded woodpecker which helps to save trees from bugs and beetles, the most useful and also harmless to humans and black snakes, one of the best rat traps in the world, the Meherrin's bank houses countless dogwood - the symbolic "State Tree of Virginia" and the beautiful goldenrod horror to those with hayfever.

Yes, the Meherrin belong to all of us. It is a clean and beautiful little river that we can point to with predictable pride and pleasure. The Meherrin is more than just gold. It is a "high grade" nugget of Southside, Virginia.

Conservationgram

WILD TURKEY CONTEST. The National Wild Turkey Federation will sponsor the 3rd annual Virginia State Turkey Calling Champtionships and the Mid-Atlantic Open Calling Championships. Both contests will be conducted on Sunday, October 1, 1978 at the James Wood High School on Route 50 West in Winchester, Virginia. Events scheduled include a White-Tailed Deer Country Seminar by noted authority Mike Ondik of Pennsylvania State University, a showing of the film "Call of the Wild Turkey" and the state calling contest which will begin at 11:00 a.m. The Mid-Atlantic Open Turkey Calling Contest will begin at 2:30 p.m. Information is available from M. N. Gardell, 402 Adahi Road, S.E., Vienna, Virginia 22180.

BLACKSBURG TO HOLD SPECIAL REGIONAL HUNT AND FISH DAY OBSERVANCE. Plans are currently being developed statewide for the annual observance of National Hunting and Fishing Day, September 23, 1978. In Blacksburg, Va. a southwestern Virginia regional celebration will be held at the University Mall located just off Rte No. 460.

Former World Champion turkey caller Rob Keck will be on hand to demonstrate calling, talk turkey and judge the Southwestern Virginia Wild Turkey Calling and Story Telling Contest. The Game Commission will have a display of wildlife educational materials. Other events include a fish for fun pool for kids, a fish and wildlife appreciation poster contest, and a chicken BBQ. On display by local clubs will be hunter education programs, women in NRA, bowhunting, bass and trout fishing techniques and equipment, taxidermy, black powder rifles, Ducks Unlimited materials and wildlife management techniques for backyards. The celebration is sponsored by the VPI & SU Student Chapter of The Wildlife Society in cooperation with the Montgomery County Sportsmans Federation and other clubs in the region. For entry information on the wild turkey calling and story telling contest, contact: Pete Bromley, 150 Cheatham Hall, VPI & SU, Blacksburg, Va. 24061. Telephone 703/961-5507.

NATIONWIDE INCREASE OF HUNT AND FISH LICENSE SALES. People who hunted and fished last year spent a record $329 million on licenses, tags, permits and stamps during Fiscal Year 1977 (July 1, 1976 through June 30, 1977). The total income from license sales of all kinds was up by $10 million over FY 1976. This includes $156 million from the sale of fishing licenses (up by $1.56 million over 1976) and $172.8 million from the sale of hunting licenses (up by $9.2 million over the previous year).

Sales in Virginia totaled 725,725 for fishing licenses, tags, permits and stamps issued. Of this total, 70,309 were non-resident.

Hunting license sales (of all types) in the Commonwealth totaled 903,020 of which 68,041 were in the non-resident category. In comparison, Pennsylvania, which led the country in total sales, recorded 1.9 million licenses, tags, permits and stamps sold. The revenues derived from these license sales enable states to conduct their fish and wildlife conservation and management programs.

Additional funds come from Federal Aid in Fish and Wildlife Restoration programs under which states are reimbursed up to 75 percent of the cost of approved projects. For the current fiscal year, which ends September 30, 1978, $87,200,000 was apportioned in Federal aid funds for fish and wildlife conservation.

INTERNATIONAL WHALING COMMISSION MAKES LIMITED PROGRESS. Meeting in London in late June, the International Whaling Commission (IWC) reduced overall catch quotas about 9%. However, the IWC postponed decisions on the North Pacific sperm whales until special meetings scheduled for December. The most significant conservation gain was a total ban on the taking of Southern Hemisphere sei whales. Environmentalists believe that the decline of the populations of these "managed" whales into the protection category demonstrates the inadequacy of the management scheme.

U. S. Eskimos were given a new bowhead quota for 1979 of 18 landed or 27 struck.

Game and Furbearing Mammals of Virginia

BY CARL "SPIKE" KNUTH

Virginia is blessed with a variety of terrain and habitat types. Along with the variety in habitat comes a variety of mammals. Mammals have long fascinated mankind to the point that he has domesticated and learned to train many of them for food, fur, skins, work, companionship and enjoyment. To the hunter, trapper and others who appreciate and enjoy wildlife, Virginia's mammals are a great blessing — economically, and ecologically.

One mammal unique among Virginia's wild creatures is the opossum. The opossum belongs to the order marsupalia, of which they are the only North American member. It is a medium-sized mammal with long, coarse grayish white fur; a sharp, slender muzzle; prominent, thin, naked ears; short legs and a long, grasping tail.

The opossum's habitat includes thickets, woodlands, swamps and orchards. The naked, newly-born opossums are very tiny. The female has a fur-lined pouch on its belly where the young are carried.

Opossums eat small rodents, frogs, birds, bird eggs, wild nuts, fruits, carrion and garbage.

The gray squirrel is Virginia's most common squirrel. Weighing from 3/4 to 1½ pounds, it is gray in color, washed with yellowish-brown.

Gray squirrels are found in young, dense stands of oak and hickory — frequently in the bottom lands. They build their bulky, leafy nest in large tree crotches or take up residence in tree cavities. Two or three young make up the average litter. They spend most of their time in trees, cavorting and feeding on nuts, seeds, wild fruits, corn and spring tree flowers.

The larger fox squirrel prefers more open and mature forests of mixed hardwoods near farms, orchards and usually in uplands.

The cottontail rabbit is another one of Virginia's common mammals. Its soft fur is a reddish-brown to grayish-brown with a light underside. Cottontails are found in a variety of cover types from open, brushy fields or forest edges, to fencerows, hedges, thickets, dense grass, weeds and brush piles. They feed on grasses, herbs, tender shoots, sprouts, buds, nuts, berries as well as vegetables and farm crops.

The nest is lined with grasses and fur to keep the four to six young warm and comfortable.

The groundhog or woodchuck is a chunky animal weighing four to fourteen pounds with short, powerful legs; a bushy, flattened tail; and a broad head with large incisor teeth. It is grayish-brown in color with a yellowish or reddish cast and light undersides.

The young, numbering four to five in a litter, are born in the cozy, grass-lined nest within the burrow. Groundhogs feed on grasses, alfalfa, leaves, roots, stems, barks, berries, nuts and garden crops.

The muskrat is a medium-sized stocky bodied rodent, weighing from 1½ to 4 pounds. It is most numerous on coastal marshes, along rivers, ponds and lakes. Normally it builds a bulky, dome-shaped nest structure of vegetation, or it will burrow a den in a bank. Its food consists of stems and roots of aquatic plants — especially cattails — insects and animal matter. It is a good diver and swimmer. The muskrat has two to three litters a year with four to 10 young.

The beaver is the largest rodent in North America, varying in weight from 26 to 90 pounds. Its stout, dark brown body is short-necked, with a large, blunt head and small eyes. The beaver is perfectly equipped for life in and around water. Its webbed, hind feet and large horizontally flattened tail aid it in swimming in its watery habitat in and around the water.

It constructs its den behind a dam it builds on a creek to form its own pond or along a river or lake bank. The "house" may measure seven feet high and forty feet in diameter with a three by five foot living space inside. Its diet is mainly bark and tree twigs from felled trees stored near its den for winter. Cottonwood, willow, aspen and yellow pond lily are some of its favored food. The female has a single litter of three to four kits in April, May or June.

The weasel family is an interesting and unusual lot. All have musk glands and release odors. They may measure 11 to 17½ inches and weight 2½ to 9½ ounces.

The long-tailed weasel prefers woodlands, thickets and brushy fencerows near water. Its home is generally a shallow burrow, a rock pile or a tree root system. They are very beneficial because they eat mice and rats as well as frogs, snakes, insects, small birds and mammals. In summer it has dark brown upperparts with yellowish-white underparts. In winter its coat changes to white and it is known as the ermine.

The most famous, or infamous, member of the weasel family is the striped skunk. It is black with white stripes and weights 3½ to 10 pounds. It is mainly a nocturnal animal that favors forest edges, brushy field corners, fencerows or open, grassy fields.

It makes its home in old rabbit or woodchuck burrows or under buildings around farms in open country. A litter of four to six young are born in spring.

Food of the skunk consists of grubs, mice, insects, snakes and birds eggs.

The otter, is a playful, active animal, well-known for its habit of belly-sliding down muddy or icy slides.

It is a long-bodied, long-tailed animal with a large, elongated, broad, flat head and webbed toes. Its dark brown fur appears black when wet.

A burrow, constructed in a bank, under roots of a large tree or a thicket of vegetation is home for the otter. Two to four young are born any time from January to May. Otters feed on fish, frogs, crayfish, mussels, snails and aquatic insects.

The mink is noted for being a crafty, active carnivore. Because it is so expert at catching and killing mice, rats, rabbits, birds and snakes, it is often referred to as bloodthirsty.

It is dark brown in color, measuring 16 to 27½ inches long and weighing 1¼ to 3¼ pounds, the female being smaller. It has a small, flattened head, a long body and neck and short legs. The mink inhabits streams, swamps, marshes and lakeshores. It is an excellent swimmer and will go after frogs, crayfish, salamanders and fish.

The red fox shows a marked preference for fields, meadows and woodland edges. They prefer to dig their burrows in sunny hillsides, under a log or tree in an open woods or maybe under some brush. In March and April some four to six young are born.

The fox feeds mainly on rodents — rabbits, mice and voles — as well as berries, nuts, corn and occasionally birds and domestic poultry.

The smaller gray fox is grayish with reddish-brown fur on the sides of its neck and undersides. It is found throughout the United States and Mexico except the western plains and the mountainous regions of the northwest. The gray fox is shyer than the red fox and prefers brushy, wooded areas over the open areas.

Another common nocturnal mammal is the raccoon. Varying in size from eight to forty-nine pounds, its heavily furred, masked face and ringed tail are distinctive. It is a grizzled, grayish-brown and black — tinged with yellowish-gray. Its favorite haunts are along streams and rivers, swamps and marshes, hardwood timbered areas. Here it feeds on crayfish, fish, snails, insects, mice, birds and wild fruits such as persimmons, grapes, plums, greenbriar, osage orange and blackberries as well as nuts.

The raccoon uses old woodchuck burrows, muskrat houses, caves, crevices or hollow trees for its den. In April or early May, three or four are born in the single litter. They weigh only 2½ ounces at birth.

The black bear is the largest carnivore in Virginia with the males attaining weights of 200 to 600 pounds. It feeds naturally on carrion, insects, berries, rodents, frogs, crayfish, fruits, fish, green corn acorns and other nuts, ants and honey.

Caves, depressions or crevices in a rocky mountainside or under large fallen trees serve as a den. The young are born in late January or February with two cubs being common. Normally, a female gives birth every other year. The tiny cubs are six to eight ounces at birth and leave the den at two months of age.

The bobcat is another of our larger mammals though only a medium-sized cat weighing ten to forty pounds. It is yellowish to reddish-brown, streaked and spotted with black. It prefers second growth, thick forests with cliffs, clearings and timbered swamps. Its territory encompasses at least five square miles and may extend to forty square miles.

Bobcats depend heavily on eyesight to hunt mainly at night. Rabbits, squirrels, turkeys, various rodents and deer (as carrion) are their main foods, with about 67% of its diet made up of rabbits. Two or three young are born in April and May. Bobcats are more numerous than generally believed but are seldom seen.

The white-tailed deer, or Virginia white-tail is Virginia's most important big game animal. Its best habitat is mixed, brushy woodlands and forest edges in agricultural areas close to a water source.

White-tails spend the day in concealing cover, normally feeding at dusk or dawn on grasses, aquatic plants, wild fruits, twigs, buds, nuts and leaves. It has taken a liking to numerous crops such as corn, soybeans, celery, carrots and strawberries.

Rutting begins in late October and early November with bucks commonly fighting or sparring. Breeding takes place in November or December with the young being born in May and June. Anywhere from one to four fawns may be born to a doe, with twins being quite common. Fawns weigh up to five pounds at birth and are spotted. These spots serve as camouflage for protection and they give off no scent.

The Cougar — one of Virginia's Mammals? Recent evidence indicates these big cats may once again roam Virginia's mountains.

Photo by Leonard Lee Rue

VIRGINIA'S GAME AND

FOX SQUIRREL

GRAY SQUIRREL

COTTONTAIL

GROUNDHOG

BEAVER

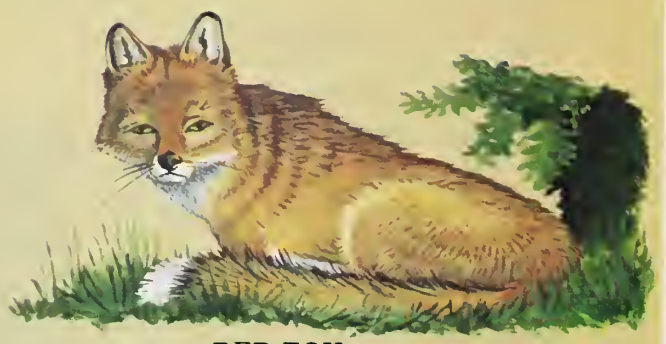
MUSKRAT

WHITE-TAILED DEER

OPOSSUM

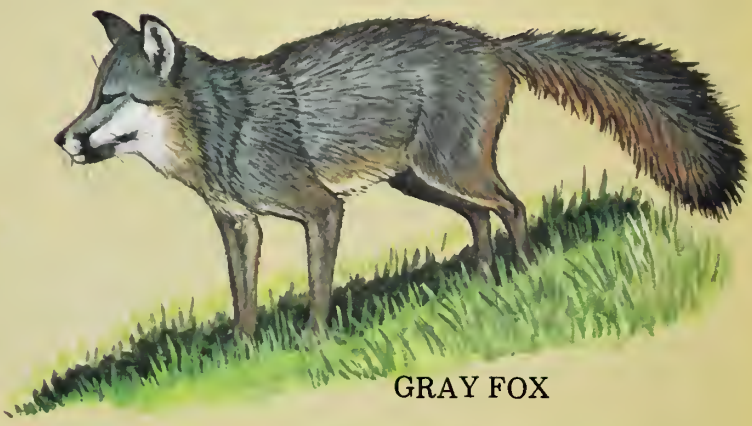
FURBEARING MAMMALS

RACCOON



RED FOX

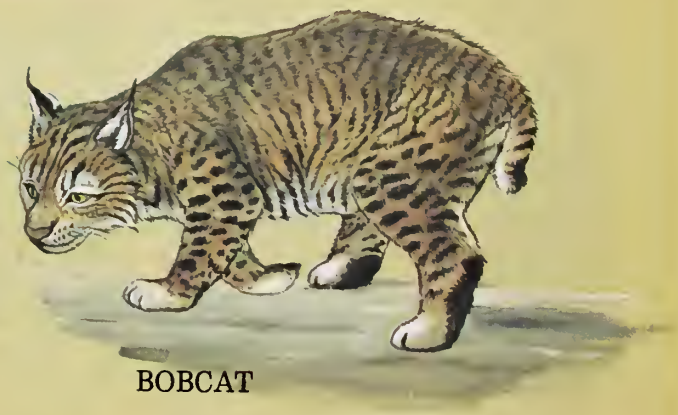
STRIPED SKUNK



GRAY FOX

LONG-TAILED WEASEL

MINK



BOBCAT

OTTER

BLACK BEAR

BY WATSON GREGG

1977 Trout Season

The year 1977 was an extraordinarily difficult year for trout in Virginia. The coldest winter on record was followed by the worst drought in fifty years. I have been performing a study on trout streams in the past year and have observed first hand the effects of the severe conditions on the trout. The study concentrated on Native Brook Trout populations in streams of the Shenandoah National Park, with a focus on Big Run.

Big Run, located in the southern section of the Park, has the largest volume of water of any stream in the Shenandoah National Park, and consequently has the largest trout population. Fishing pressure on the stream is minimal (one will never see more than two fishermen in any one day, and this only in the beginning of the season), so fluctuations in trout numbers are not likely related to overfishing. This is due to the relative inaccessibility to the stream--it is a two mile walk to the headwaters from the Skyline Drive in mountainous terrain.

The project involved the analysis of certain physical and chemical parameters throughout the year on the stream, along with observations on trout populations and fishing success. Trout populations and fishing success are obviously related; the relationship being more direct in Brook Trout waters than in most aquatic environments in as much as Brook Trout are usually in heavy competition for a limited amount of food. Fishing success was determined by using a standardized lure (a gold Colorado spinner with a Royal Coachman fly attached), and a standardized angler (myself) throughout the fishing season.

The early spring was a warm one, with enough rain to ensure an adequate supply of water to all streams in the state. The warm weather and occasional rains produced algal blooms in many streams (including Big Run and the Bullpasture River), which is a rare occurrence for the season. Fortunately, though, the flow of water was adequate to prevent overpopulation of the blooms and their resulting "choking out" effect of animal life.

Photo by H.L. Gillam

Analysis of the trout populations in Big Run revealed that it had suffered little from the severity of the previous winter. Winter is the season in which most trout fatalities occur. Larger streams, like Big Run, can endure the cold much better and avoid freezing over whereas the smaller streams cannot. As a result, it appeared that only the smaller streams in the Shenandoah National Park (i.e. those less than five feet wide) suffered greatly from the adverse effects of winter.

Fishing success for the first 1½ months of the season was average for the time of year in Big Run. Streams at that time of year usually contain plenty of food for trout and hence there is a great deal of competition for an artificial lure.

The best fishing was between about May 15 and June 15, as the blooms died out and the drought had not yet begun. During this period the food was less plentiful (the waters were subsiding, reducing food input) and the fish remained quite active. Walter Williams, a law student at the College of William and Mary, and I managed to catch 30 trout in an overnight trip to Big Run (only eight of which we kept, the daily limit being 5 trout per person in the Shenandoah National Park).

Although precipitation had been decreasing since late May, the effects of a lack of water did not hit the

A Retrospective

streams until after June 15. It was then that the drought began. Severe depletion of water on all streams continued until August 18, when the lowest stream level was attained. Temperatures throughout the period were consistently above 75 degrees F. (the lethal limit for Brook Trout), and as a result there were a good many trout fatalities in the lower region of Big Run. The headwaters of Big Run had gone dry around the beginning of August. Thus, trout existed in significant numbers only in a 3-4 mile middle section, where they were obviously suffering although surviving. Large algal blooms were proliferating in Big Run due to the existence of much sunshine and the presence of necessary nutrients from the groundwater. Fishing success during this period was bleak.

The streams rose somewhat after August 18, as temperatures dropped, allowing precipitation to catch up with evaporation and taking some of the pressure off the trout. Fishing success increased markedly--the trout were very hungry after having been off their feed for so long--although a great deal of care had to be exercised to catch any fish.

Stream conditions remained pretty much at a constant level (low but not severe) despite the continued drought throughout the rest of the fishing season. Cooler temperatures in late September eliminated all the remaining algal growths and fishing success stayed about the same--difficult, but not impossible. Still, the effects of the high temperatures and low water were evident trout populations had declined significantly with fatalities occurring mostly among the larger trout (those greater than 8 inches in length), due to their higher oxygen demands and their needs for more space. Numbers of smaller trout had declined also, however, there remained enough large and small trout to support a good fishery in the future. Interestingly, the drought had thrown the trout off their normal reproductive cycle, as they did not attain their fall colors as early this year as usual.

Other streams studied throughout the year were Moorman's River, Tye River, South River, Naked Creek, Hawksbill Creek, and Jeremys Run. None of the streams suffered quite as much as Big Run, although none had as large an initial population. Big Run is much more dependent upon precipitation for its water than are most trout streams, whose major input is groundwater. South River and Hawksbill Creek are very small streams that can support only small trout (an 8 incher in these waters is large).

The stream that best survived the summer was Jeremys Run, located at the northern end of the Shenandoah National Park. This stream has an excellent groundwater supply and maintains cool temperatures even in adverse conditions. Because of this, Jeremys can support an ideal size distribution of trout and thereby is probably the premier native Brook Trout stream in the Park. Naked Creek is an interesting small stream that is seldom fished but contains a fair number of large (12 inchers) trout.

As for the prognosis for next year, Jeremys Run is a sure bet with the smaller streams holding some surprises. Big Run has suffered greatly, but the surviving trout are obviously the hardiest, and should survive the winter. Studies on Brook Trout populations in times of drought have revealed that it takes a Brook Trout fishery two years to recover from dry weather, so Big Run should resume its position as a prime native trout stream by 1979.

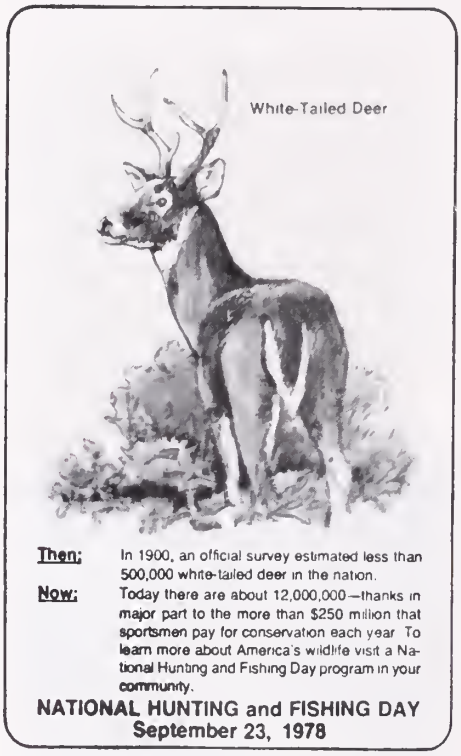
Trout fishing is one of the most popular forms of this great sport.

Wildlife Kaleidescope

HUNTING & FISHING DAY

SEPTEMBER 23

Saturday, September 23 is National Hunting & Fishing Day and programs have been organized in communities throughout Virginia. Local Sportsmen's clubs and conservation groups will sponsor special displays, films, exhibits and free instruction in the outdoor sports. Look for announcements of Hunting & Fishing Day activities in your local newspapers.



GET READY NOW FOR WOOD STOVE WEATHER

Once an interest in wood burning stoves is kindled, the problem becomes which model to buy.

There are box, airtight, fancy parlor, pot-bellied, circulator, and oil drum stoves. There are stoves made of cast iron, sheet metal, steel plate, fire brick or some combination.

Stoves are designed to heat, a specific number of cubic feet. The amount of space to be heated should affect which model is selected. Other factors to consider are stove efficiency, safety, cost and availability of parts and service.

Box stoves are the most basic wood stoves designed. Named for their box-like shape, these stoves are among the least expensive on the market, selling for under $300.

They are only 25 to 30 percent efficient, however. Box stoves require careful supervision, since their burning rates are difficult to control. They generally burn more wood while producing less heat than airtight models.

Airtight stoves are usually made of welded sheet metal or steel plate and lined with fire brick. Air is drawn into these stoves through an automatic damper controlled by a thermostat. Airtight designs use less wood than common box stoves, reducing the labor needed to heat homes. They are more expensive than box stoves but are also 20 to 30 percent more efficient.

Scandinavian stoves are a third popular model. They are made of tightly sealed cast iron and are designed to produce heat evenly by burning wood from one end to the other. They usually sell for $500 or more.

A final popular wood stove is the airtight circulator model. Circulating stoves have a cabinet or jacket surrounding the firebox. Air is heated in the space between the inner firebox and the outer jacket, then hot air is evenly distributed by convection. Circulating stoves are safer because their outer surfaces don't get quite so hot. A good model sells for between $300 and $400.

SWAMP SOCIETY PUBLICATION

"Indians from the Ice Age to the Colonial Period", a monograph by Ed Bottoms on Indian habitation and activities in the Dismal Swamp, is now in publication. Mr. Bottoms has conducted many archeological digs in the Swamp area, and is an authority on Dismal Swamp Indians.

"The Great Dismal Swamp: A Brief Interpretation" presents a broad introduction to the ecology, geology, wildlife and history of the Swamp.

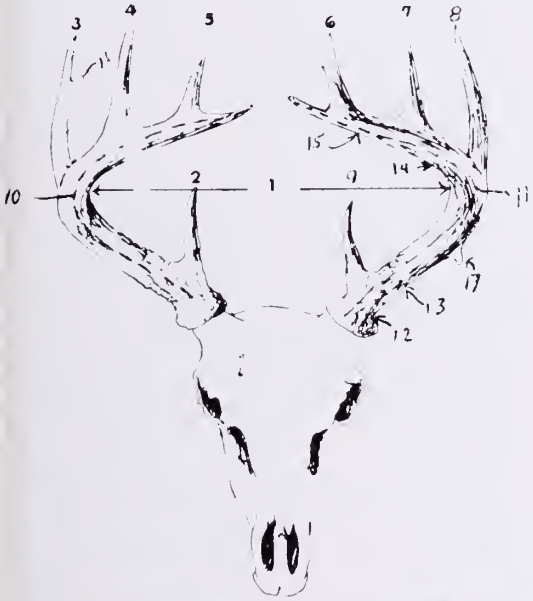
Copies of both monographs are 50 cents each, and are available through the Office of Dismal Swamp Programs, Old Dominion University.

Here's Mr. George Hieronymus with the 7-pound, 6-ounce smallmouth that he hauled out of Lake Laura in Bayse this past April.

HOW DOES THAT TROPHY RATE?

1978 STATE BIG GAME TROPHY CONTEST

- There are no advance entry forms. Heads or antlers must be carried or shipped to the proper regional contest where they will be officially measured and entered. Bear skulls only need to be entered in state contest. Turkeys are scored by length of wing, tail, and beard.
- *Prizes* for regional winners
- *Trophies* for first place State winners in each Division
- plus *Honorable Mention Certificates*

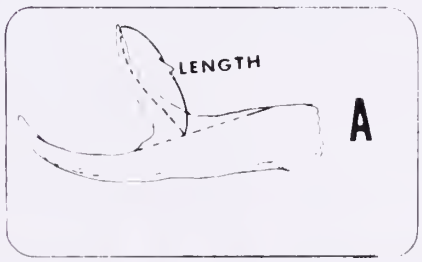


EACH year there are a number of impressive deer heads that are not entered in the State Trophy Contest because the persons who killed them feel they will surely be nosed out by a larger specimen. Consequently, one or more divisions are won by mediocre heads when larger racks are known to have been killed. In a true contest it is impossible to set up minimums for entry because average quality and number of entries varies markedly from year to year. The following procedure is recommended as a rough test for a prospective entry but is by no means intended to discourage entry of heads which do not measure up to these standards. All heads must be measured by an official measurer at the contest for final score.

To estimate the score of your head, add together (all measurements to nearest 1/8 inch) the spread of the main beams (1) plus the number of points plus the length of all points and random prongs (2-9, 16 and 17—See insert A) plus the length of both main beams (10 & 11) and the circumference of both antlers at the burr and between all points (12-15). After totaling all these measurements and counts, subtract half the length of all abnormal points (such as 16 & 17) and one-half the difference between corresponding length and circumference measurements on one antler and those on the other.

If the rack scores 225 or better, have it officially measured for Boone and Crockett competition. (Max M. Carpenter, Route 1, Dayton, Virginia, is official measurer.) If it has 9 or more points and scores 150 or over, or if it has 7-8 points and scores 100 or over, or if it has 6 or less points and scores 50 or over, it has a good chance of placing in the Game Commission's Big Game Trophy Contest.

The contest was started in 1941 and has been held annually since. Heads are first judged in regional competition at Harrisonburg or Newport News. The state contest is held in conjunction with one of the regional events alternating between eastern and western sites. Heads must be killed during the previous season to be eligible and the entrant must furnish the Big Game tag or an affidavit from the game warden certifying the entry as a legal kill.



DEER

BEAR

TURKEY

The east-west regional dividing line will follow the east-west deer season line in effect the year the entry was killed.

WESTERN REGIONAL CONTEST

October 20-21
Fair Grounds, Rt. 753
Harrisonburg, Virginia

For entry details contact

Larry Dickenson
P.O. Box 1335
Harrisonburg, Va. 22801

Sponsored by the
Harrisonburg-Rockingham
County Izaak Walton League

STATE CONTEST

October 7
Fairgrounds, Rt. 753
Harrisonburg, Virginia

Virginia
Commission of Game and
Inland Fisheries

(Heads must be physically present to win.)

Only animals first entered in regional competition are eligible

EASTERN REGIONAL CONTEST

October 7
Deer Park Elementary
Intersection of Rt. 143 and Rt. 17
Newport News, Virginia

For entry details contact

James S. Harvey
126 Kerlin Rd.
Newport News, Virginia 23601

Sponsored by the
Virginia Peninsula Sportsmen's Assn.

THE ART OF ARCHERY

BY BILL WEEKES

Some will say that the bowhunters, the Robin Hoods of the deer hunting set, are a breed to themselves. They never really stop hunting. In season or out, they continue to hone their skills toward a razor sharpness likened to their arrow heads.

During the last year or two, bowhunting organizations have been stressing education as a means of better, more accurate shooting. For instance, a few years ago, the National Field Archery Association (NFAA, Rt. 2, Box 514, Redlands, California, 92373) published a 64-page reference manual entitled "Bowhunting Deer". The manual is fast becoming the bible among bowhunters because of its thoroughness. Also, bowhunting clubs in the south have been holding seminars.

Attending some of these seminars has been NFAA's vice-president, Perry Haymes of Simpsonville, S. C. Haymes, 55, began bowhunting only eight years ago, but his skill afield exemplifies the maximum that it's never too late to learn a new sport. In fact, he gave up hunting with guns because bowhunting "turned him on." He regularly harvested a half dozen deer or more each year. In the following interview, Haymes talks about the skill and satisfactions that accompany bowhunting.

Question: What's the most significant thing in shooting accurately with a bow and arrow?

Haymes: If you don't hold the bow steady, you're not going to hit anything, that's it in a nutshell. Of course, there's a lot that goes with shooting accurately — correct bow and arrow selection; the proper way of setting up the bow; taking care of your equipment; and the employment of tricks to fool the deer. All this takes a lot of effort, but it's what makes a productive hunter.

Question: Let's start with the bow. There's three kinds of bows — the long, recurve and compound, but most bowhunting these days is with the compound, isn't this so?

Haymes: Yes, about 90 percent of the pros use the compound bow, which has revolutionized archery. The advantage of the compound is in its centric wheels which roll over, relieving the poundage on the string to a comfortable weight that can be held steady on a game animal or target for a length of time. One development in archery that has come from the compound is the "sight window." It's cut off-center, deep enought into the bow so that the string can deliver an arrow straight through.

Question: What other advantages are there to the compound bow?

Haymes: Tuning mechanisms are used with the compound bow. The manufactured size of the wheels determines the draw length of the bowman. And the stored energy of the compound has flattened the arrow's trajectory to a great advantage. Arrows coming out of earlier bows flew a higher trajectory. As a result accuracy was not as great. But the compound directs the arrow more along a straight line.

Question: What about the arrow itself, what part does it play in the accuracy of a shot?

THE SUCCESSFUL ARCHER WILL MELT INTO THE BACKGROUND. DO YOU SEE HIM?

Haymes: It's very important. In picking the right spine arrow, you should make sure it's of a proper bulk and strength for the strength bow you're using.

Question: How does a beginner choose the correct bow and know the best size arrows to use?

Haymes: Well, you should select a bow that suits your arm length and physical strength. Never pick a heavy bow to start with. Find someone who excels in archery and get his advice. A beginner may also obtain guidance from a knowledgeable dealer. He can furnish you charts which show the proper size and length arrow that goes with your bow. You just don't go into a store and buy any old bow and a handful of arrows.

Question: Is there any minimum that a man bowhunting for deer should start out with as far as the strength of his bow setup?

Haymes: I don't like to see anyone go into the woods with less than 45 pounds. The penetration will not be very good below this.

Question: What about the draw length, the distance you pull the string back? How influential is this to accuracy?

Haymes: The average arrow used is 29 inches, but lengths vary from 24 to 34 inches. What length arrow you use is determined by arm length and overall personal comfort. And people also have various anchor points — where their shooting hand stops on the pull back. Some pull back to their cheek, or put their fingers in their mouth, or back to their chest, and so forth.

Question: Just how effective is an arrow in killing a deer and what additional equipment might you need in hunting live targets?

Haymes: One thing is that you use steel heads called broadheads. The main thing to remember here is that you pick a head that will give you good penetration.

The arrow head must be razor sharp. If you have a rough saw edge, the blade will not cut the arteries. Hemorrhaging is needed to down an animal because an arrow really has little shock effect, much less than a bullet has.

Question: How do you go after a deer? Is there much difference between hunting them with a bow rather than with a gun?

Haymes: I use a tree stand, or I may stalk, but I believe a bow hunter has a better chance of seeing a deer because he knows to hunt where the deer are — that is, he learns to hunt in the thickly grown-up areas where deer lurk. A bowhunter will pick a thick area where one, two, or three trails are located. During the day, deer will move into the thickets. Most gun hunters with scopes, on the other hand, like long-range open areas where the deer just will not move most of the day.

Question: What about camouflage, is it very important?

Haymes: Yes it is, although I've hunted without it. Actually, being still in the stand is the best camouflage. When I know that a deer might come up to meet me face to face in a place, I'll wear face netting. Your tree stand should be at least 12 to 15 feet from the ground and I sometimes raise it to 20 feet.

Question: To sum up, then, are there any fundamental things to remember when you're bowhunting?

Haymes: Yes. First: you should know your game and their habits. Then, know how an arrow works, how it comes off the string — so you'll know how to adjust your bow (setting up a bow could probably cost between $100 and $350, depending on how elaborate a man wanted to be with it). A third fundamental is to practice the unwritten law of the bowhunter: being a sportsman. If you're hunting on private land, ask the farmer or landowner first for permission, and respect that man's property by not littering it. A fourth point — and I've mentioned this before — I believe the best way a man can become a good bowhunter is by joining a club. In this way he can get a lot of worthwhile tips.

SALTMARSH ECOLOGY

BY CURTIS J. BADGER

Few people look at a saltmarsh and see exactly the same thing. To the sportsfisherman, the wetlands are important because they are the breeding ground or spawning ground for his quarry. The commercial fisherman sees them in a similar light, but to him the wetlands mean his livelihood. The fish, crabs, clams and oysters produced in the marshes bring the paychecks, that pay the grocery bills, the car payment, and the other necessities of life.

The hunter sees the marsh as a sanctuary for wildfowl, a wintering ground for the black ducks, mallards, scaup, and other species that make the fall and spring migrations along the Atlantic flyway. For others, the marsh means different things. For the scientist, the estuary is a living laboratory, providing opportunities for experimentation. For the birder, the marsh is a productive theatre for wildfowl which changes casts with the seasons. The artist finds beauty in the almost limitless expanses of flowing grasses and spiraling tidal creeks and bays. And to the developer, the wetlands mean lucrative housing developments, marinas and potential recreational opportunities.

The uses of the wetlands are almost as expansive as the marsh itself, but in recent years people have come to realize that the marsh cannot be all things to all people. What brings gain for some brings loss for others.

A decade ago, marshlands in America were disappearing at an alarming rate. Productive wetlands were being filled to produce housing developments, industrial sites, and farmland. Wetlands surrounding urban areas were made sterile by uncontrolled dumping of untreated

Part one: the marshland food chain

sewage, industrial waste, and other toxic byproducts of civilization.

But in the 1960s, a growing awareness began to take hold in coastal states that the marshlands were a valuable and fragile resource, an important commodity in need of protection. This awareness spawned strict wetlands legislation on state and federal levels. Virginia passed a Wetlands Act in 1972, and since that time, destruction of wetlands has decreased from as much as 500 acres per year to less than 20 acres. Although the wetlands laws have done much to curb misuses of the saltmarsh, the fight to preserve wetlands remains a controversial issue. The popular scenario is one which places the land developers on one end of the spectrum and environmentalists on the other, but the political reality is not so easily simplified. Somewhere between the two extremes are the majority of the owners of wetlands, people who recognize the importance and fragility of the marsh, but people who often resent the awesome piles of paperwork they must tackle to build a dock or breakwater.

Like saltmarsh politics, the web of life in the wetlands is complex and constantly in a state of change. But the saltmarsh is a quiet and unassuming place, and it does not broadcast the fact that it is one of the most productive natural systems in the world. Perhaps this is the reason that generations considered wetlands a wasteland. The benefits are not immediately visible, but the mosquitos, greenhead flys, and the deep, sticky mud are painfully obvious.

The cycle of life in the saltmarsh centers around the tall, slender reeds of cordgrass which cover nearly all the tidal marsh. The cordgrass, Spartina alterniflora, is emerald green in the spring and summer and turns golden brown in the fall. Although the Spartina comes when the plants die in the fall and decompose to form a nutrient rich bacterial soup called detritus. Few marsh animals feed directly on the living Spartina grass, but the detritus produced by the decaying Spartina is the basis of the saltmarsh food chain.

When the grasses die in the winter, they are immediately attacked by bacteria which digest the leaves, breaking them up into smaller and smaller pieces. As the grasses decompose, the small particles and the bacteria which feed on them are spread through the marsh by the tides. The detritus mixture when mixed with algae by the flow of the tides, is the most abundant food in the saltmarsh, nourishing countless marine organisms too small to digest the Spartina while it is still in large pieces.

The detritus mixture is the basis of a food cycle which touches nearly every animal that comes in contact with the saltmarsh, even man. Small microscopic animals are the first to feed on the mixture and these small detritus eaters are consumed by creatures farther up the food chain, which are, in turn, consumed by the carnivores.

The smallest animals to feed on the detritus are the protozoans and the small nematode worms. The larvae of many marsh insects, such as mosquitos and flies, feed on the detritus. Fiddler crabs, which can often be seen scampering across the surface of the mud beneath the Spartina stalks, also eat the detritus, scooping up mixtures of food and mud with their tiny claws.

Some fish feed directly on the detritus also. The small minnows, killifish and mummichogs, frequent the shallow waters of the marsh and filter the nourishing mixture from the water. Larger fish such as menhaden and mullet also come into the shallow tidal creeks to feed on detritus.

All the filter-feeding animals of the marsh are dependent on the detritus. Clams burrow beneath the surface of the mud and extend a small, funnel-like membrane upward to suck in the nutrient rich water. Stationary shellfish such as oysters also filter the soup from the water, digesting the smaller particles and discarding the larger ones.

A step up the food chain are the carnivorous marsh animals which

The marsh mud flats, bathed in a nutrient rich bacterial soup called detritus are home for a variety of mollusks, and crustaceans which in turn nourish higher organisms.

feed directly on the plant eaters. The marsh is home for many insect predators. Spiders prey on marsh insects such as grasshoppers which eat the live Spartina. Beetles, dragonflies, and other predatory bugs attack other smaller insects. Even the larva of some insects feed on the detritus eaters. The greenhead fly larva is equipped with a pair of sharp jaws, and it feeds indiscriminately on a wide variety of small detritus eaters which live in the marsh mud.

The insects, in turn, are at the mercy of birds. Wrens, sparrows redwing blackbirds, swallows, willets, gulls, and rail dine on the marsh insects. Other birds, such as herons, egrets, terns, and diving ducks, feed on fish and small crustaceans. The most majestic of the flying fishermen, the osprey, hovers over the creeks and bays, spotting his quarry in the waters below. The powerful fish hawk dives into the water at tremendous speed, often emerging with large fish such as flounder or weakfish clasped in his talons.

The artist finds beauty in the almost limitless expanses of tidal creeks and bays but these areas are the life blood of a significant part of Virginia's economy. The sport fisherman, the hunter, the waterman and the tourist industry are among those dependent on their bounty.

Mammals of the marsh feed on plants and the detritus eaters. Clams, oysters, and mussels make up the bulk of the diet of the raccoons. Otters and mink enjoy a diet of finfish and crustaceans. Muskrats are mainly plant eaters, feeding on a variety of aquatic vegetation.

Probably the most conspicuous consumer in the marsh food chain is man. We use prodigious amounts of shellfish: clams, crabs, oysters, and shrimp. We take delight in catching fish and shooting waterfowl, participating, perhaps unwittingly, in one of the most productive and diverse cycles in nature.

It is a cycle of predators and prey, a chain in which life sustaining energy is captured and passed from link to link. Ironically, the system has its beginning in a blazing star 93 million miles away. The sun's energy, captured in photosynthesis by Spartina and algae, is the source. Then, through the cyclical demise of the plant life, the energy is passed from creature to creature, giving life to each.

WISE BOATERS HAVE A KEEN WEATHER SENSE

After experiencing the most rigorous winter in recorded weather history, the majority of boaters are taking to the lakes, rivers and ocean for a day of relaxation. While weather can't be controlled it requires boaters to be alert and use all available aids in determing weather conditions.

Spending up to eight hours a day on the water boaters learn that wind and weather conditions will radically affect local water. Before setting out, check the area forecast as well as scan the skies for telltale weather signs.

Today the average boater has no trouble obtaining current weather forecasting information. The National Weather Service has special radio channels that forecast around the clock. You can get the prevailing wind speed and direction, plus expectations for the next 24 hours. A radio with a weather band can be beneficial in planning your boating day.

Some boaters carry a barometer and compass aboard. A compass will also assist you in determing wind direction. When you check the barometer and it's falling, and the wind is blowing from the east, it's time to be thinking about getting back to shore. When the barometer is rising and wind is blowing from a westerly direction, there's good weather ahead and cruising should be pleasant. Be alert, however, to a steady breeze with slowly falling barometer, because unsettled or wet weather is on the way. Generally, when the barometer is rising, boating is best; a falling barometer should alert you to weather dangers.

Sea breezes can be tricky. These breezes are cause by summer sun heat masses in which hot air rises over the land and cool air from over the water flows in to replace it. If you prefer smooth boating, it's best to go out in the early morning or late evening hours.

Remember too, that running against the wind will consume more fuel than running with it, so be sure that you have plenty of fuel in the tank when you venture offshore.

FIGHT WATER POLLUTION: HERE'S HOW

This country's almost 48 million boaters can do a lot to help make our waterways cleaner and more enjoyable for boating. Here are some things to keep in mind to make sure you're not part of the pollution problem.

When filling your boat's gas tank be especially careful not to spill one drop of gasoline or oil overboard. An extensive test of one boating water showed that ecological impact to a lake is most likely to show up around a dock where gasoline is handled.

Make sure your outboard or boat engine is tuned up and running well. A rough-running engine will emit noxious hydrocarbons.

Please don't litter. Save your scraps in a litter bag for disposal later.

Go one step beyond. Look for floating tin cans, plastic bottles and other debris and make it a point to collect as much as you can and dispose of it later.

WALTER J. LEVERIDGE

Commissioner
Second Congressional District

Mr. Walter Leveridge is originally from Plainfield, New Jersey. He grew up in that area, yet even as a youngster he became fond of the Old Dominion as the result of frequent trips to Virginia's Eastern Shore to visit his maternal grandparents. His grandfather was a great source of inspiration to Walter and the old gentleman's tales of hunting and fishing trips to distant places had a profound effect on the youngster.

As he grew up in the Plainfield area, Walter worked at a variety of jobs after school and during the summer vacations and he still found time to have a love affair with the outdoors and wildlife. Following graduation from Plainfield High School, he was accepted as a trainee at the Central Hanover Bank's School of Banking in New York City.

A bit later another love affair (this time, one of the heart) occurred, for Water met, fell in love with and married the former Margaret Smith of Virginia Beach, Va. Although the couple made their home in New Jersey in connection with Walter's work in the banking business, they frequently returned to Virginia to visit. It also provided Walter with an opportunity to hunt with his father-in-law, Mr. Chester O. Smith, a man that he sincerely admired and from whom he learned much about fishing and hunting and the environment.

In the early 1940's the Leveridges moved to Virginia Beach where Walter entered Civil Service and became affiliated with the Postal Transportation Service. He remained with the PTS and became Supervisor of the Norfolk District office. In 1956 the "mail train" concept of distribution was abolished and, although Walter was offered a position in the Postal Service in Washington D.C., he turned it down to remain in the Virginia Beach area. At this point in his life he formed his own Industrial Cleaning business and currently is continuing in that endeavor.

Since his early experience with hunting and fishing in Virginia, Walter has expanded his participation in the sports to the extent that he has hunted and fished a major portion of the North American continent. He is heavily involved in the conservation movement and is currently President of the Virginia Wildlife Federation and is Chairman of the Concerned Citizens for Conservation and Recreation organization.

On July 1, 1978 he became a Commissioner with the Commission of Game and Inland Fisheries, representing the Second Congressional District. In that capacity he replaced E. E. Edgar, who completed his second, and by law, final term as Commissioner from that part of Virginia. Walter feels that it is a great honor to have been selected as a Commissioner by Governor Dalton. He realizes that "the position is a challenge" and he fervently desires to "meet that challenge and in doing so hope also to be able to speak for the sportsmen and women of Virginia in telling the story of their collective contribution to the successful management of fish and wildlife."

Walter and Margaret live in Virginia Beach. They are the parents of one son and four daughters and they have ten grandchildren.

Growing Up Outdoors

BY SANDY COLEMAN

Illustration by Diane Grant

VIMS?

"I bet nobody in the world ever had more fun," Amy thought as she snuggled down into her bed in the cabin her family had rented on the Chesapeake Bay. The long summer was nearly over and soon school would begin. Her thoughts turned to the promised outing for the next day — a boat ride with friends of her family and a visit to someplace that her Mom said had a shark. As she thought of the fun to be had the next day, Amy reluctantly fell asleep.

"Hey, Amy. Look at all the jellyfish," Matt said as he pointed to the water quickly passing. The two watched the ghostly figures swaying in many directions beside their boat. "Why do they move like that in so many different directions?" Amy asked. "You can't tell which way they are going to go next. They look really silly."

"Well, they aren't able to move on their own power. They have to go the way of the current," Matt explained. "That's why they move all over the place. That is the way the water itself is moving."

"Well, I still think they look silly," Amy continued. "I'm awfully glad that I am not a jellyfish. I like moving around on my own legs." She gave small sigh of self-satisfaction as she watched her Mom passing around the delicious sandwiches and paper cups full of fruit punch.

Some time later, Matt, Amy, their family and friends, found themselves at the Virginia Institute of Marine Science, more commonly known as VIMS.

"Do they really have a shark here like Mom says?" Amy asked the group. The affirmative answers reassured the little girl and she let out a little squeal of excitement. "This is going to be lots of fun!"

Matt, at the moment too dignified to join his little sister in her antics, secretly agreed.

Some time later, the two children were studying the display of marshlands to be seen in an exhibit room. "Matt, that looks just like it was outside," Amy told her older brother.

"That's called a diorama. That means that it is made to look very natural. That way you can really tell what something looks like out in the wild. I think that makes the best kind of exhibit ever," Matt told his eager listener.

The two spent some time looking at cases displaying the most beautiful seashells that they had ever seen. The shells were highly polished and would be prized by just about anyone, the brother and sister thought.

"I sure do wish that I could find some shells like that," Matt said. "I would love to have shells like that in my collection." He thought wistfully of his small, but much prized, collection of little shells. Of course, he did have the conch shells that he had found on that island the family had gone to last summer. Matt looked up to find Amy's attention focused on the aquarium on the other side of the room.

"Look, Matt. There's the shark. He's not as big as I thought, though."

"Amy, that's a sand shark. That's the right size for one of those. They can't hurt you, but they sure are interesting to watch." Matt said.

"Are they found around here in these waters?" Amy said.

"Sure. Neat looking, isn't he?"

Amy agreed and soon her attention was focused on the interesting looking turtle swimming on top of one of the tanks. "What kind of turtle is that, Matt?"

"I think that is a loggerhead turtle. They can get really big. I think I read that they can grow as big as seven feet long. There aren't as many now as there used to be. They aren't an Endangered Species, though," Matt added knowledgeably.

Later that night as they sat on the shores of the Bay, the brother and sister thought about their trip to VIMS.

"I think I might want to be a Marine Biologist when I grow up," Amy said. "Then I could work for VIMS."

Occupied with dreams of the future, the little girl soon fell asleep.

It Appears To Me

By Curly

. . . . A PERSON OUGHT TO HAVE ONE

From time to time we have referred to and suggested that you contact the United States Geological Survey for one thing or another. Until recently, the fantastic amounts of information available from the USGS has been rather hard to pin down. I am happy to report the situation has changed and those good folks have conjured up a 36 page publication which will enable you to determine what special part of the huge accumulation of earth science information it is that *you* need. Single copies are free and all you need do is request "A Guide to Obtaining Information from the USGS 1978." Circular 777 from USGS, Branch of Distribution, 1200 Eads St., Arlington, Virginia, 22202.

It might be of interest to you, or to someone you know, to learn that the Southern Forest Institute has prepared a 16 page brochure designed to explain the advantages of forest management to independent landowners. Entitled "Forestry Without Fear," the publication dwells on such aspects of forest management as why forests should be managed, getting started and timber sales, to mention a few. It's free and available from the Southern Forest Institute, 3395 Northeast Expressway, Suite 380, Atlanta, Georgia, 30342.

Never ceases to amaze me just how many varied services are available from the Extension people associated with and working for Virginia Polytechnic Institute and State University. For example, do you know about the recorded information that you can get just by calling any one of a number of telephones throughout the Old

Dominion? Well, sir, the dandy details available range from how and when to mulch your garden, information about the best way to utilize your home freezer and chasing mildew, to health, nutrition and food preservation. To mention only a few of the services which are available to all of us out here, the following are the locations and phone numbers of just some of the pre-recorded messages: Henrico County, "Tip-A-Phone" 804/747-4640; Newport News, "Tip-A-Phone" 804/599-5827; Fairfax County "Dial-A-Tape" 703/691-3240. There may be others, and I know that some similar services are being planned, but at any rate if you need information about most anything, check your local phone book for the VPI Extension Office.

. . . . FOR YOUR BOOK SHELF

Over the years I reckon that we here at the Game Commission have been contacted a zillion times by folks seeking information about camping and related activities. This in turn has enabled us to talk to some real fine folks. Although we do have a good working knowledge of this outdoor activity and, consequently, have been able to help countless people, our expertise is more along the line of hunting and fishing and such. However, as it turns out a fella named Robert Shoesteck has been doing his homework and, wouldn't you know, he has come up with a dandy demonstration of what you can do when you get your facts together. Bob has compiled a fantastic amount of detail in what he calls *Campers Park Guide* which outlines the locations, services available, fees charged (if any) for nearly 900 recreation areas, forests and parks from Maine to Florida. Typical of the delightful details which are available for each location are the picture symbols heading each entry. These indicate, at a glance, what is to be expected from the type of toilets, and disposal facilities to whether pets are allowed and the accessibility of restaurants. These pictographic presentations are followed by a description of the location, the activities available nearby and comprehensive directions (that even I can understand) that will lead unerringly to the place that pleases.

Priced at $9.95, plus a $1.00 mailing fee, *Campers Park Guide* is available from EPM Publications, Inc., 1003 Turkey Run Road, McLean, Va. 22101, or from your book store.

. . . . AND THEN

Ira N. Gabrielson said it in a Preface to *The Fisherman's Encyclopedia*, which he edited in 1950, "angling, in one form or another, occupies the attention of more people than any other participation sport or recreation. Hunting undoubtedly comes next and the total number of people who enjoy these forms of outdoor recreation exceed that of all other participation sports combined."

Cardinal Flower

BY HAROLD E. SKINNER, JR.

Overhanging hardwoods along the dry streambed gave little relief from the unbearable August sun. A parched landscape flickered bleached greens and sandy tans and browns in the harsh light.

Vicious clouds of gnats swarmed about my head, and tendrils of spider web clung tenaciously to my perspiring face. Then, through the film of dust and heat, I detected cool, soothing splashes of deep blood-red along the shaded stream bank. As I moved closer to the little wildflower colony, my mind slipped back one year to the South Anna River, where the same vivid splashes of color had adorned the river banks and added a pleasant remedy for an only mediocre day of fishing.

That night my curiosity led me to a wildflower handbook. After searching the pages for a few minutes, I recognized an illustration of the flower and identified it as Lobelia cardinalis, the Cardinal Flower.

In late summer I now keep a watchful eye peeled for those red splashes of color whenever I frequent the stream and riverbanks, lakeshores, and moist woodlands that the Cardinal Flower favors. These wildflowers are becoming very scarce due to overpicking; they are unfortunate victims of their own beauty, and are common only in the less frequented parts of their broad range. A special fondness continues to grow in me for the Cardinal Flower, for they are a symbol of our precious, vanishing wild places.

Cardinal Flowers are found in moderately acetic soils from Ontario to Florida and Texas, and they occur as far west as Kansas and Colorado. They are usually single-stemmed herbs from one to three feet in height, but they occasionally branch and may grow to nearly six feet. The long, thin, serrated leaves from two to six inches long are pointed at each end and alternate on a smooth stem which grows from the perennial root.

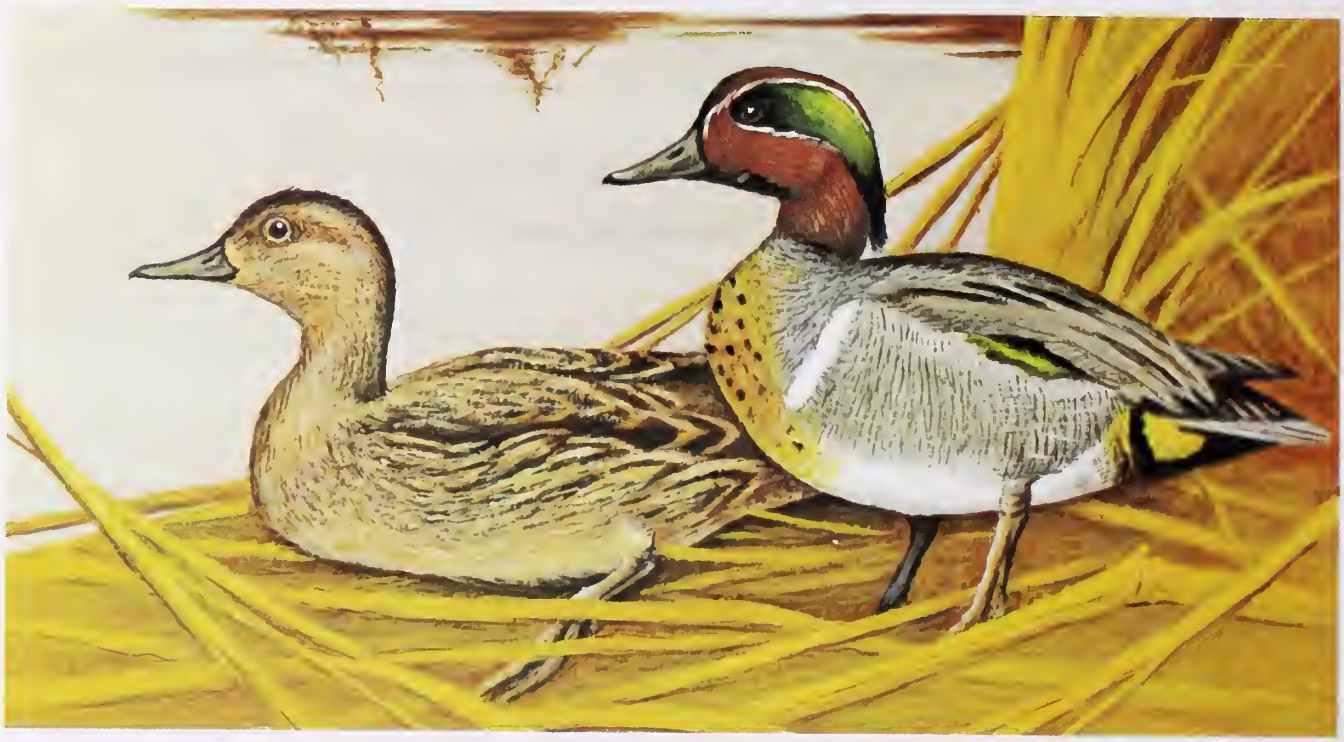
Cardinal Flowers bear the largest, and the only red blooms of the genus Lobelia. The blooms, which are also very rarely white, occur in erect columns up to one foot high. Each individual flower is about one inch long and has a predominant lower lip deeply cleft into three lobes. A lesser lip has two lobes.

The rich blood-red color of the bloom would suggest that it derived its name from our beautiful state bird, the Cardinal. Actually, the name resulted from the likeness of its corolla to a miter, or ceremonial cap of a Roman Catholic cardinal.

Finding a rare cluster of Cardinal Flowers always brightens the day afield. However beautiful they are, one must avoid the temptation to pick a bouquet, for if we lose the Cardinal Flower from our moist woodlands and streamsides, we lose more than just a colorful wildflower — we lose a symbol.

Bird of the Month

GREEN-WINGED TEAL



BY JOHN W. TAYLOR

To many, it is the wood duck which gets the nod as the most handsome of our native wildfowl. But to the few who have seen it close-up, it is the drake green-winged teal that gets number one ranking. It's a quieter beauty, neither bizarre nor gaudy, and the diminutive size adds somehow to its loveliness.

The rich chestnut brown head is accented by an iridescent green patch, bordered with white, around the eye and cheek. The breast is a soft pinkish orange, delicately modulated where the feathers overlap, and dappled with dark spots. The finely vermiculated flanks are set off by the white vertical in front and the creamy buff patches on the sides of the rump. The metallic green speculum which gives it its name is fringed with black and ochre.

The drab hen is better recognized by her size and shape than by her color. She is a mottled brown and buff, darkest on the crown, lightest on the cheeks and belly. The speculum in the wing is as bright as that of the male.

The teal's charm is enhanced by its powers of flight. A flock in tight formation can put on a spectacular aerial show. Wheeling and turning in perfect unison, they hurtle through space, maneuvering as one. Though remaining bunched closely, they never seem confused or uncertain, despite speeds estimated close to 160 miles per hour.

They are equally as facile on land. They walk about gracefully, with little of the "waddle" characteristic of their tribe. Often they feed extensively on dry land, or move on foot from one pool to another. An excellent swimmer as well, it has been known to dive underwater when danger threatens — unusual behavior for a dabbling duck.

Some writers have commented on the "silence" of the greenwing. The birds are in fact quite vocal, if not as loud and boisterous as are some waterfowl. The high-pitched whistle of the male, sounding very much like a cricket's rasping, is frequently the first notice given of their presence. It is repeated at rest and in flight, sometimes insistently. The female has a quacking note, reminiscent of the mallard but not as loud or as harsh.

The majority of these teal nest in the prairie states of the northwestern United States and in Canada. The entire breeding range is more extensive; east to the Gulf of St. Lawrence and north to the treeline.

They have been suspected of nesting farther south. Individuals have been noted in summer on the Jersey shore, and in the marshes of the lower Delmarva peninsula. Most likely these are aberrant or injured birds that did not migrate.

Normally it is not until late September before they appear in the mid-Atlantic states, the bulk of them not arriving until late October or November. In mild winters they stay the winter; a series of freeze-ups will drive them south.

THIS SQUIRREL IS WORTH $100!

Denise Finebeiner, a student at First Colonial High School in Virginia Beach, entered this squirrel drawing in the 1977-78 Small Mammals of Virginia Contest.

The contest, jointly sponsored by the Izaak Walton League of America and the Virginia Commission of Game and Inland Fisheries, offers prizes for drawings, essays and photographs portraying small mammals found in the Old Dominion.

First prize, a $100 savings bond, was awarded to each winner in grades 5-12 in each of the three categories of art, essays and photography. Denise, a 10th-grader, won first prize in the art category for her grade.

Second prize winners receive $50 savings bonds, while Special Mention prizes of $5 each are awarded to numerous entrants. Total prize money awarded is $3,600!

SEE OUR BACK COVER FOR DETAILS

$3600. IN PRIZES

FOR ESSAYS, DRAWINGS OR PHOTOGRAPHS OF

WATER, FISH and WILDLIFE

RULES:

CONTEST PERIOD: September 18, 1978 - - - January 19, 1979. ELIGIBILITY: All students in Virginia schools, g 5-12. TO ENTER: Obtain entry form from participating school or from address listed below. Student may enter categories. Submit entry with completed form through school or directly to: CONSERVATION EDUCA COMMITTEE (IWLA) Department of Fisheries and Wildlife, Room 100, Cheatham Hall, Blacksburg, Virginia 2 Submissions should be pertinent to the importance of water to the existence of fish, birds and wi

Essays

1. Essays should not exceed 750 words.
2. Essays will be judged on the basis of originality, effort, grammar, and grasp of the subject.

DRAWINGS

1. Drawings should be no more than 8½" X 11" for ease in sending to judges. Should be on no more than one specie of mammal.
2. Drawing may be done in charcoal, pen and ink, water colors or oils. No tracing will be permitted. Such entries will be immediately disqualified by judges.
3. Attached to drawing must be identification of species and brief description of its habits.
4. Drawings will be judged on the basis of likeness, effort in drawing and originality.

PHOTOGRAPHS

1. Photos must have been taken by contestant. Photos submitted must be taken during contest period to be eligible.
2. Material submitted can be either in black and white or color and must be a print. No slides allowed.
3. Attached to drawing must be an identification of the specie and brief description of their habits. Participant must include exposure data, location and type of film and lens used.
4. Photos will be judged on originality, technical excellence, effort and expression.

PRIZES:

Winners to be announced on or about May 1, 1979.

Top winner in each grade for drawings, photographs, and essays will receive a $100.00 savings bond. Second prize winners will receive a $50.00 savings bond. Special mention prizes of $5.00 each will be divided among eligible grades in proportion to response. Top prize winners will be considered for a publication in an issue of Virginia Wildlife Magazine.

All submissions become property of the sponsoring agency.

Jointly sponsored by the Virginia Division, Izaak Walton League of America and the Virginia Commission of Game and Inland Fisheries, publishers of Virginia Resources distributed free to all schools in the State